November 15, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
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METROPOLITAN EDISON COMPANY	)	Docket No. 50-289 SP
	)	(Restart)
(Three Mile Island Nuclear Station, Unit No. 1)	)	
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LICENSEE'S BRIEF IN OPPOSITION TO APPELLANTS' BRIEFS ON EXCEPTIONS RELATED TO MANAGEMENT CAPABILITY

SHAW, PITTMAN, POTTS & TROWBRIDGE

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I. INTRODUCTION

On August 27, 1981, the Atomic Safety and Licensing Board ("Licensing Board" or "Board") in this proceeding issued a Partial Initial Decision (Procedural Background and Management Issues) ("Management PID"). Exceptions to that Management PID were thereafter filed with the Atomic Safety and Licensing Appeal Board ("Appeal Board") by two parties to the proceeding -- Three Mile Island Alert ("TMIA") and the Aamodts. On July 27, 1982, the Licensing Board issued a related Partial Initial Decision (Reopened Proceeding) ("Cheating PID"). Exceptions to the Cheating PID have been filed by TMIA, the Aamodts, the Union of Concerned Scientists ("UCS") and the Commonwealth of Pennsylvania ("Pennsylvania" or "Commonwealth"). By Order of September 10, 1982, the Appeal Board set September 30, 1982, as the date for filing of all appellants' briefs in support of their exceptions to either the 1981 Management PID or the 1982 Cheating PID. Licensee has received four such appellant briefs. In this consolidated brief, we address the arguments contained in the four appellants' briefs.1/

1/ Licensee's brief concentrates on attacks by appellants on Licensee and on the adequacy of the record. Thus we include no response to appellants' arguments regarding the adequacy of the NRC investigations into cheating and only briefly address the adequacy of the NRC's own licensing examinations for operators. We do so not because we have modified our previously articulated positions on these matters, but in the interest of preserving space in this brief, and mindful of the NRC Staff's obvious interest in these matters and Licensee counsel's knowledge that the Staff intends to focus on these issues in its responsive brief.

Licensee's brief has been organized into this Introduction, and subsequent sections on Procedural Matters, the Management PID, the Reopened Proceeding and Conclusion. It proved impossible to organize our brief by appellant exceptions, as contemplated by the Commission's regulations, because of the varying formats used by appellants, which range from briefing by single exception to argument totally divorced from any identified exceptions.2/ It also would have been inefficient to organize our brief by individual appellant since the appellants declined to follow the Appeal Board's suggestion to consolidate arguments, see Appeal Board Order of September 2, 1982, at 2-3, and some of the same subjects are addressed in more than one appellant brief. Our brief therefore is organized into the major subsets of the management and reopened phases of this proceeding and in each section we deal with appellants' related arguments. Appendix II

2/ Pennsylvania filed no exceptions to the Management PID and four exceptions to the Cheating PID; their brief combines three of the four exceptions into one argument and treats the fourth exception alone. UCS filed no exceptions to the Management PID and eleven exceptions to the Cheating PID; their brief is organized by combinations of exceptions which in their view are related. TMIA filed 83 exceptions to the Management PID and another 157 exceptions to the Cheating PID; their brief explicitly refers to 172 exceptions (only some of which are actually argued) and ignores 68 of the exceptions they initially filed. The Aamodts filed 83 exceptions to the Management PID and another 142 exceptions to the Cheating PID; only 16 exceptions are explicitly referred to in the Aamodts' brief and the bulk of their argument bears no expressed relationship to their filed exceptions. Under these circumstances, Licensee has been forced to ignore the exceptions themselves and to organize its brief to meet the arguments made by appellants regardless of whether the arguments relate to or support a particular numbered exception. Appendix I to this brief is a listing of appellants' exceptions, indicating whether they have been identified, and if so, where, in appellants' briefs.

to our brief provides an index to our responses to each of appellants' arguments.

II. PROCEDURAL MATTERS

A. Appellants' Briefing Errors

Appellants collectively have ignored or violated the basic precepts of appellate procedure, generally, and the Commission's rules for appeal, specifically. TMIA expressly notes that not all its exceptions have been briefed, but goes on to admonish the Appeal Board to "consider all issues previously raised by TMIA in these proceedings, despite the fact that they may not be fully briefed [by TMIA]." See TMIA cover letter, attaching their brief in support of exceptions, dated September 30, 1982. Appeal Boards have consistently held that unbriefed exceptions may be disregarded as waived. See, e.g., Public Service Electric and Gas Co. (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 N.R.C. 43, 49-50 (1981); Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 N.R.C. 313, 315 (1978); and cases cited therein. Accordingly, Licensee's brief meets arguments briefed by appellants in their briefs, but includes no argument on the many, many exceptions which appellants have ignored in their briefs. See Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-409, 5 N.R.C. 1391, 1395 (1977).

In some instances, appellants raise for the first time on appeal arguments that they have not advanced before the Licensing

Board. This practice clearly is contrary to accepted Appeal Board practice. The Appeal Board has ruled that it will not entertain arguments that are raised for the first time on appeal and which the licensing board has had no opportunity to address. Salem, supra, at 49; see also, Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 1B, 2A and 2B), ALAB-463, 7 N.R.C. 341, 348 (1978). Out of an abundance of caution, however, Licensee has met these arguments by appellants while noting that they are being raised for the first time on appeal. See, e.g., pp. 42 n.44, 52 infra.

In many instances, appellants have simply ignored the Commission's Rules of Practice which require that the "brief shall be confined to a consideration of the exceptions previously filed by the party and, with respect to each exception, shall specify, inter alia, the precise portion of the record relied upon in support of the assertion of error." 10 C.F.R. § 2.762(a). Appellants make arguments in their briefs which bear no expressed relationship to their exceptions. See, e.g., TMIA Brief at 2-3; Aamodt Brief at ¶ 34. Appellants cite as support their own previously filed findings.3/ See, e.g., Aamodt Brief at ¶¶ 48, 62. Appellants also improperly seek to rely upon

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3/ Reliance on proposed findings does not take the place of meaningful argument and record references. See Salem, supra, ALAB-650, 14 N.R.C. at 50 (1981); Hartsville, supra, ALAB-463, 7 N.R.C. at 370 (1978); Public Service Electric and Gas Co. (Hope Creek Generating Station, Units 1 and 2), ALAB-394, 5 N.R.C. 769, 770 (1977).

extra-record materials. See, e.g., Aamodt Brief at ¶ 86; TMIA Brief at 1; see also Hartsville, supra, ALAB-463, 7 N.R.C. at 352. Citing to extra-record evidence seems particularly unnecessary in this case which has spanned months and months of hearing time and includes thousands of pages of testimony and exhibits.

B. Appeal Board Standard of Review

Pennsylvania's Brief at 13-15 points out "that the substantial evidence rule is not strictly applicable to the Appeal Board in reviewing actions of a Licensing Board panel," citing Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 N.R.C. 397, 402-05 (1976).4/ The Commonwealth then argues that the Appeal Board should substitute its judgment for that of the Licensing Board. Licensee does not question the stated principle that the substantial evidence rule does not govern an appeal board's review of a licensing board decision. We do not, however, extend that principle as easily as would Pennsylvania to govern this case. To be sure, nothing in Catawba or the cases cited therein dictates that the Appeal Board substitute its

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4/ Pennsylvania also cites "In re Duke Power Co. (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-302, 2 N.R.C. 856 (1975), and authorities cited therein" and "In re Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-452, 6 N.R.C. 892 (1977)." Perkins has absolutely nothing to do with the substantial evidence rule. In Midland, the Appeal Board in an antitrust case cited with approval the Catawba precedent, observing at the same time that "in general practice we accord licensing board decisions presumptive validity; we do not scan every line of testimony or examine each document in evidence de novo." 6 N.R.C. at 1022-23 (citations omitted).

judgment for that of the Licensing Board. Further, we note that even in Catawba, where the Appeal Board took the opportunity to provide clear guidance to litigants on the inapplicability of the substantial evidence rule to appeals before it from licensing board decisions, the Appeal Board there did not exercise the right it had to substitute its judgment for that of a licensing board. The Appeal Board, in fact, has shown commendable restraint in this area. The cautionary notes of "we would not do so lightly", Catawba, supra, ALAB-355, 4 N.R.C. at 404, and "we may, indeed must, attach significance to a licensing board's evaluation of the evidence and to its disposition of the issues", id., and "we accord licensing board decisions presumptive validity", Midland, supra, ALAB-452, 6 N.R.C. at 1023, are sounded appropriately by appeal boards and followed. We suggest that such caution is particularly appropriate where the case is as extended and complex as the instant case and the criteria are as undefined and as subjective as here.

This Licensing Board devoted literally some two years full-time to this one proceeding. It sat for approximately three months of hearing in the initial management phase alone and heard during that period from some 53 witnesses, the vast majority of whom were Licensee management, employees and consultants. Similarly, the Special Master presided over 18 days of hearings in the Reopened Proceeding, during which some 39 witnesses testified. Through this process, the Board developed a keen awareness of Licensee and its people, its processes, its policies

and its underlying objectives. They have observed, and questioned first-hand the principal members of management in virtually every department of Licensee's organization. We think, in this case, the Appeal Board should be wary of Pennsylvania's advice to substitute its judgment for that of the Licensing Board. This is not because the subject matter is so objective and the standards for acceptance so well defined that a different judgment is apparent, but rather because the subject matter is so subjective and the measure of acceptability so vague that judgments can always differ. Under these circumstances, the presumptive validity the Appeal Board normally applies to Licensing Board decisions is particularly appropriate here where the decision-maker has been so closely involved in the process that its familiarity cannot be paralleled, even though the Appeal Board may possess no less qualification or experience in the area. See Catawba, supra, ALAB-355, 4 N.R.C. at 404.

C. Licensee Burden of Proof

In its Introduction, TMIA suggests that Licensee in this proceeding has "a very heavy burden . . . to show how lifting the license suspension can be 'reconciled with the public interest.'" TMIA Brief at 1. TMIA cites a number of post-TMI-2 accident investigations, which are not in the record of this proceeding, as blaming "Met-Ed management for contributing to the severity of the accident, and in particular, for creating conditions at the plant which caused the accident to occur", id., and argues

therefore that the case is compelling for a very heavy burden on Licensee.

Licensee has not contended, nor does it now contend, that we do not bear the burden of proof in this proceeding, even though there is no precedent in NRC cases for this restart proceeding. The Commission's August 9, 1979 Order and Notice of Hearing applies to Licensee the burden of meeting the NRC reasonable assurance standard. That burden of proof, or ultimate burden of persuasion, is met by convincing the trier of fact by a preponderance of the evidence that the reasonable assurance standard has been met on the issues presented in this case. See 42 U.S.C. § 2231; Steadman v. SEC, 101 S. Ct. 999, 1009 (1981), reh. denied, 101 S. Ct. 2008 (1981); Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-79-8, 10 N.R.C. 141 (1979); Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-616, 12 N.R.C. 419, 421 (1980). There is no justification, because of the TMI-2 accident, to effectively penalize Licensee now by applying a burden of proof in this proceeding different from the standard employed in every other NRC proceeding, particularly where the Commission's Notice of Hearing tracks NRC's reasonable assurance standard.

D. Procedural Objections

1. The Aamodts. The Aamodts raise a number of procedural objections, which Licensee addresses seriatim.

The Aamodts first complain, without record citation, that they were severely prejudiced by their inability to hear throughout the hearing. Aamodt Brief at ¶ 90. This extraordinarily late objection, not raised in findings before the Licensing Board or the Special Master, is inconsistent with the Aamodts' active participation in the restart proceeding, see Management PID at ¶ 242, LBP-81-32, 14 N.R.C. 381, 465,5/ and with the Licensing Board's responsiveness when the Aamodts informed the Board and the parties that they could not hear. See Tr. 12,141-42 (Chairman Smith, Mrs. Aamodt).

The Aamodts argue that because of unavailability of transcripts in public reading rooms, they had insufficient time to complete and file their proposed findings on January 18, 1982, three days after all parties originally had agreed to file findings with respect to the reopened proceeding. Tr. 26,549-52 (Blake, Milhollin). Thus, they now claim on appeal that Judge Smith erred in ruling orally against their filing of findings after January 18. Aamodt Brief at ¶ 97.

Citing only to their proposed findings, the Aamodts complain of certain alleged limitations in the conduct of the reopened proceeding. Aamodt Brief at 61. See n.86, infra. the Aamodts state that all transcripts were not available until December 31, 1981. Aamodt Proposed Findings (Reopened Proceeding) ("PF") at

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5/ For citing convenience, Licensee hereinafter refers only to the relevant paragraph of the Management PID and does not include the NRC Report's parallel citation.

¶ 33. They fail to mention, however, that on or about December 8, 1981, there was specific discussion among the parties of a set of transcripts in addition to those in public reading rooms which was available for joint use by the Aamodts and TMIA. The Aamodts agreed to receive these transcripts after January 1, 1982, see Aamodt Motion for Admissibility of Findings, dated January 20, 1982, stating that they did not plan to begin work on their proposed findings before January 4, although the hearing itself ended on December 10, 1981. Thus, they cannot justifiably complain that they lacked transcripts at a time when they needed or wanted to use them. In view of these facts, Judge Smith's ruling was justified and should be upheld.

The Aamodts also maintain the reopened proceeding was unnecessarily rushed6/ and that the hearing failed to develop a complete record on, among other things, cheating.7/ See Aamodt PF at ¶¶ 12-15, 18-22, 29. While the Aamodts complain about the pace, they fail to mention the extension of the proceeding from

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6/ The Aamodts argue that the hearing period could have been extended if Licensee had promptly notified Judge Milhollin, pursuant to his oral request, of any occurrence extraneous to the reopened proceeding that might delay the TMI-1 start-up; viz., the repair of leaks in TMI-1 steam generator tubes. Aamodt PF at ¶¶ 13-14. The Aamodts are wrong, because the very day Licensee's counsel had sufficient information to report the delay due to the repair of steam generator tubes, counsel informed Judge Milhollin and all those on the TMI-1 service list. See Licensee's Answer to Aamodts' Motion for Reconsideration of Aamodt Motion for Admissibility of Findings of January 20, 1982, and Admissibility of Additional Findings, dated March 19, 1982, at 4-5.

7/ For the first time on appeal, TMIA makes this same claim with no record support. TMIA Brief at 58.

two to four weeks8/ to accommodate the thirty-six witnesses who testified and were cross-examined at length by all parties, including the Aamodts, and by Judge Milhollin.9/ See Licensee's Reply to Findings Proposed by Other Parties in Reopened TMI-1 Restart Proceeding (Jan. 22, 1982) ("Lic. RF-Cheating") at ¶¶ 96-97.

The Aamodts next allege that the discovery period was too rushed to ensure completeness. Aamodt PF at ¶ 15.10/ They exaggerate the pace, however, by ignoring the extensive informal discovery that preceded the first formal discovery period. Licensee produced numerous documents in response to an informal discovery request from the Aamodts. See letter from Licensee to Marjorie Aamodt, dated September 25, 1981. Licensee also hand-served documents requested by the Aamodts at the October 2, 1981 prehearing conference. The Aamodts also neglect to mention their own late-filed discovery requests and their failure to answer a very limited number of interrogatories. See letter from

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8/ Judge Milhollin originally reserved two weeks for hearing time. Schedule for Reopened Proceeding, ff. Tr. 23,187. Of course, the hearing adjourned four weeks later.

9/ The Aamodts also claim that the time allotted for cross-examination was too short to ensure a complete record. Aamodt PF at ¶ 31. However, they cite to no instance, and Licensee can recall none, when they were refused time to cross-examine for other than legitimate evidentiary reasons. Thus, they have no basis to complain now. See, e.g., Tr. 26,968-69, 26,972-73 (Milhollin, Mr. Aamodt, Mrs. Aamodt).

10/ For the first time on appeal, TMIA makes this same claim with no record support. See TMIA Brief at 58.

Licensee's counsel to Aamodt counsel, dated October 23, 1981; letter from Licensee's counsel to Norman Aamodt, dated October 26, 1981.

They next argue that the record was "diminished" because there was no opportunity to recall witnesses concerning subsequent testimony, particularly I&E Investigator Ward.11/ Aamodt PF at ¶¶ 18-20. While the Aamodts did request orally (on the evening of the last day of the reopened proceeding) that Investigator Ward be recalled, they fail to note the perfectly sound reasons for Judge Milhollin's denial of their request; viz., that the subject for which the Aamodts sought clarification (Mr. Husted's alleged solicitation of Mr. P) was "fully described in his [Mr. Ward's] testimony." Tr. 26,996-97 (Milhollin); see Lic. RF-Cheating at ¶¶ 100-02.

Pursuing a similar theme, the Aamodts claim that at least twenty witnesses (in addition to the eighteen witnesses who prefiled testimony on behalf of the Licensee, the Staff and the Aamodts) should have been called to complete the record. These additional witnesses include the Associated Technical Training Services ("ATTS") personnel who administered the mock NRC exam given in April, 1981, ten operators who took the NRC SRO exam in

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11/ The Aamodts also complain about the inability to recall witnesses to discuss the results of the October, 1981 NRC exam. This argument must fail because they never requested the opportunity for such examination. Moreover, the purpose of their desired examination was to discuss TMI-1 staffing, which is totally irrelevant to the issue at hand, viz., the Board's ability to uncover instances of cheating.

April, 1981, and all operators who took any quiz on which cheating allegedly occurred. Aamodt PF at ¶ 23. They ignore the fact that all the parties, including the Aamodts, freely agreed on a list of nineteen witnesses to be called without prefiling testimony, based on the witnesses' potential abilities to illucidate the issues in the reopened proceeding. This list was then approved by the Special Master, Tr. 25,220-26 (Milhollin, Blake, Goldberg), who later added two other witnesses. Tr. 25,570-72 (Milhollin). Licensee believes the witnesses who testified more than adequately covered the issues presented.

The Aamodts also claim that the confidentiality agreement, to which all parties stipulated, was violated by Messrs. O and W because those operators did not testify candidly. Thus, the Aamodts claim that the stipulation should have been rescinded, at which time the two operators would have had to testify in public and allegedly would have testified honestly and openly. Aamodt PF at ¶ 17. This claim must fail in view of the Aamodts' failure to complain at the time the matter was discussed during the proceeding, see Tr. 26,241-47 (Milhollin, McBride, Goldberg, Adler, Blake), or at any time before the filing of their proposed findings.

The Aamodts complain that Judge Milhollin failed properly to pursue the issue of the accelerated attrition of operators. Aamodt PF at ¶ 34. However, they once again fail to note that they were given every opportunity to discover whether operator attrition was related to cheating, and it was determined that

these departed employees in fact did not leave Licensee's employ because of cheating. See Tr. 25,331 (Clewett); Tr. 25,844 (Mr. HH); Tr. 26,313-14 (Mr. V); Tr. 26,014 (Mr. YY). See generally Licensee's Proposed Findings of Fact and Conclusions of Law on Issues Raised in the Reopened TMI-1 Restart Proceeding (Jan. 5, 1982) ("Lic. PF-Cheating") at ¶ 27 n.14.

The Aamodts claim that Licensee violated the spirit, if not the substance, of the Sequestration Order.12/ Aamodt Brief at ¶ 81. This Order was issued to prevent prospective Licensee witnesses from adjusting their testimony after discussing the proceeding with Licensee witnesses who had already testified. Tr. 23,532 (Clewett). The Order did not apply to witnesses testifying on behalf of the intervenors or the NRC Staff, nor did it prohibit discussion about such witnesses' testimony. Sequestration Order dated November 12, 1981 at Attachment I.

The Aamodts complain here because Licensee informed two prospective witnesses of the testimony of an NRC Staff witness. Aamodt Brief at ¶ 81. They therefore moved, on the last day of

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12/ The parties entered into an agreement to sequester Licensee's witnesses during the reopened proceeding, which agreement was made effective by Order dated November 12, 1981. Tr. 23,911 (Milhollin). In essence, the Order provided that (1) specified prospective witnesses were excluded from the hearing room when other specified witnesses were testifying; (2) specified prospective witnesses were not to discuss among themselves either the nature or the administration of certain NRC and Licensee exams, or their oral testimony, including questions asked; and (3) the limitations in (2) above were inapplicable to a prospective witness' discussions which were necessary or incidental to expeditious completion of ordinary business affairs.

hearing, to stay the proceeding to examine the integrity of the hearing. Tr. 26,788 (Mr. Aamodt). They now appeal the denial of this motion, Tr. 26,797 (Milhollin), and the denial of their January 8, 1982 Motion For Reconsideration Or In The Alternative, Motion For Directed Certification, on the ground that the reason for denial, i.e., that Judge Milhollin had received enough evidence with respect to the individuals,13/ was "spurious". Licensee strongly disagrees.

First, Licensee points out that its counsel confronted two of its own witnesses with prior testimony by an NRC Staff witness because the NRC Staff witness revealed for the first time on the stand potentially incriminating information with respect to the two Licensee witnesses, which information had not previously been reported orally, in NRC Staff prefiled testimony or in the various investigative reports. Tr. 26,791 (Blake). Licensee's counsel took this action in order to prepare cross-examination of the NRC Staff witness. Licensee's counsel clearly indicated his confidence in the propriety of his action, id., and Judge Milhollin was satisfied that counsel acted in good faith. Tr. 26,797 (Milhollin).

The Aamodts' stay motion, which was opposed by Licensee, Tr. 26,790-92 (Blake), the NRC Staff, Tr. 26,792-93 (Goldberg) and the Commonwealth, Tr. 26,793-94 (Adler),14/ was denied because

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13/ The Aamodts mention another reason for the denial; viz., "the scheduled day of the hearing", Aamodt Brief at ¶ 81. This phrase obviously is incomplete and Licensee cannot respond.

14/ TMIA took no position on the motion.

there was no "very clear showing" or "clear offer of proof of improprieties" sufficient to sustain such a motion. Tr. 26,797 (Milhollin). There was only a vague complaint by the Aamodts that the general degree of candor of Licensee's witnesses was disappointing and that somehow, witnesses must have been improperly coached by Licensee's counsel. Tr. 26,798 (Mr. Aamodt). Judge Milhollin found it unfair to conclude that Licensee's counsel was responsible for the quality of the testimony, Tr. 26,797-98 (Milhollin), and thus "[did] not believe that the interest of justice would be served by granting the motion." Id. The motion for reconsideration was denied by Memorandum and Order Denying Motion to Stay the Hearing, dated February 9, 1982, because Judge Milhollin was still convinced that Licensee's counsel had acted in good faith according to the terms of the Sequestration Order. Id. at 2. In addition, the Aamodts failed to meet the requirements for interlocutory appeal under 10 C.F.R. § 2.730(f). Id.

With respect to the adequacy of nonlicensed personnel training, the Aamodts argue that the Special Master erred in not admitting the testimony of the Aamodt witness, Mr. Harry Williams, during the reopened proceeding. Aamodt Brief at ¶ 37. As indicated in the Report of the Special Master ("SMR") and the Cheating PID, and consistent with the presiding officer's authority to conduct a fair and impartial hearing and to strike irrelevant evidence, 10 C.F.R. §§ 2.718, 2.757, the testimony of Mr. Williams was properly rejected, given the witness' demeanor,

the slight probative value of the testimony, and the fact that the credibility of the witness had been undermined. Tr. 25,031-32 (Milhollin); see SMR at ¶ 179, Cheating PID at ¶ 2226.15/

Finally, the Aamodts dispute the Board's rejection of their testimony on operator fatigue. Aamodt Brief at ¶¶ 85-88. The issue of operator fatigue would have been relevant to the restart proceeding only if it could have been established as having a nexus to the TMI-2 accident or the handling of the accident, the parameter generally defining the scope of the restart proceeding. Tr. 12,903-35 (Chairman Smith and parties); Tr. 17,256 (Chairman Smith); see generally Management PID at ¶ 24; see also, in this docket, Commission Order of March 14, 1980 (unpublished) at 2.16/ The Aamodts failed to establish such a nexus. Licensing Board Confirmatory Memorandum and Order on Aamodt Motions, April 6, 1981; Tr. 17,256 (Chairman Smith). While the Aamodts attempted to link the issue of fatigue to the accident by equating fatigue with operator mindset,17/ this equivalency was properly rejected

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15/ In ¶ 37 of their Brief, the Aamodts also refer to a recent NRC Staff inspection report, 50-289/82-07. This Report, which is not in evidence, is the basis for an Aamodt motion to reopen the record currently pending before the Appeal Board.

16/ TMIA makes a similar objection, without supporting argument, complaining that the reopened proceeding should not have been limited to post-TMI-2 accident events. TMIA Brief at 58.

17/ Operator mindset was the subject of Chesapeake Energy Alliance ("CEA") Contention 13, which was addressed in the testimony of the educational psychologist, Dr. Gardner, and in the testimony of the NRC Staff operator examiner, Mr. Bruce Boger. Gardner, ff. Tr. 12,409, at 9-13; Boger, ff. Tr. 12,772, at 10; see generally Management PID at ¶¶ 165-166.

by the Board. Tr. 17,265-67, 20,624 (Chairman Smith). Moreover, the TMI-2 accident study primarily relied upon by the Aamodts to support their view that fatigue contributed to the accident was volume one of NUREG/CR-1270, entitled, "Human Factors Evaluation of Control Room Design and Operator Performance at Three Mile Island-2," prepared for the NRC by Essex Corporation. Yet no reasonable reading of this report supports the view that fatigue played a role in the accident. See NUREG/CR-1270, at 10-26.18/ To the extent that the Aamodts argue in their Brief that the issue of fatigue is important in other contexts, e.g., the control room design, the number of operators and shifts at TMI-1 and the related issue of overtime, and stress imposed on licensed operators, these issues were litigated during the proceeding.19/

18/ Although the Aamodts argued that several other NRC documents, including the three documents now cited by the Aamodts (NUREG-0680, NUREG-0694 and NUREG-0737) supported their view, none of the documents cite fatigue as a factor in the TMI-2 accident or otherwise supports the Aamodt position. Compare Intervenor Response to Board Request for Evidence that Consideration of Control Room Operator Fatigue is Appropriate, March 10, 1981 with Licensee's Response to Intervenor Aamodt's Filing of March 10 Related to Operator Fatigue, March 19, 1981.

19/ The application of human factors principles to the TMI-1 control room was a subject of the design phase of the restart proceeding, which the Aamodts did not even attend. See Tr. 10,412-13 (Chairman Smith, the Aamodts); see generally Management PID at ¶¶ 245-247; see also Dec. 14, 1981 PID, LBP-81-59, 14 N.R.C. 1211, at ¶¶ 907-920.

The adequacy of operator shift manning was contested during the restart proceeding, and became the subject of a settlement agreement between Licensee and the Commonwealth, subsequently endorsed and embodied in a license condition by the Board. See Lic. Ex. 59; Management PID at ¶¶ 525-537, 556-582, 583(9).

With respect to the operators' shift schedule, the Board's decision records the fact that the NRC has no standards for the number of operator shifts but, rather, requires that the plant be

(Continued Next Page)

2. TMIA. TMIA claims it was prejudiced because of the lack of preparation time afforded Ms. Louise Bradford, the TMIA member who took over prosecution of TMIA Contention 5 in January, 1981, after the law firm that initially represented TMIA withdrew from the case. TMIA Brief at 2-3, 7-8. Ms. Bradford did not

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(Continued)

adequately staffed. Management PID at ¶ 574, citing Tr. 20,773 (Crocker). While the Aamodts quarrel with the use of a rotating six shift schedule because of its alleged overly fatiguing effects, the Aamodts ignore the fact that during three of the five shifts that TMI-1 workers are on duty (with a sixth shift off), the shift operating staff works from 7 a.m. to 3 p.m., i.e., while these three shifts rotate functions, the working hours remain the same. Tr. 12,245 (Ross); Long et al., ff. Tr. 12,140, at 33-34. (Under the five shift schedule which will be used by Licensee if there are insufficient personnel to man six shifts, one of the three 7 a.m. to 3 p.m. shifts would be dropped.) Moreover, one of the remaining two on-duty shifts is from 3 p.m. to 11 p.m., which does not impact regular sleeping hours. Id. Furthermore, the six shift schedule is the schedule which the operators themselves prefer. Tr. 11,656 (Ross). In addition, Licensee abides by the Commission's overtime policy. See Shovlin et al., ff. Tr. 13,533, at Attachments 13 and 14 (1980 memo from Operation and Maintenance Director of TMI-1 (formerly Manager-Unit #1) forwarding to the managers of Plant Maintenance and Plant Operations the NRC's overtime policy set forth in IE Circulator No. 80-02.) In summary, there is no basis for finding the shift staffing rotation system used by Licensee less than adequate to ensure safe operation of TMI-1. (The Aamodts do add a new twist to their argument by challenging the recently promulgated Commission policy on overtime which, of course, was not part of the management phase of the restart proceeding. See Generic Letter No. 82-12, June 15, 1982; see also 47 Fed. Reg. 23836 (June 1, 1982).)

The issue of operator stress was addressed by a number of witnesses during the proceeding. On the basis of this testimony, the Board found that stress and its potential impacts on operators had not been ignored by Licensee but, rather, consciously factored into its program for preparation of operators. See Gardner, ff. Tr. 12,409, at 7-8; Christensen, ff. Tr. 12,409, at 9-11; Boger (Aamodt Contention 2), ff. Tr. 12,770, at 6. But see, Aamodt, ff. Tr. 12,931, at 6; see generally Management PID at ¶¶ 265-266.

request additional preparation time at the time she became involved in the proceeding. Moreover, the Board did not display "callous disregard for TMIA's hardships." TMIA Brief at 2. See Tr. 10,421-42 (Chairman Smith discussion with Ms. Bradford regarding her participation in the management proceeding). Furthermore, TMIA's status as a pro se intervenor did not relieve TMIA from its responsibilities as a party to the proceeding.20/ TMIA's criticism of the Board for not pursuing TMIA's contentions is simply a means of avoiding its own failure to successfully litigate its contentions. See Management PID at ¶ 296. In any event, TMIA did actively participate in the proceeding,21/ as did the Board. See Management PID at ¶¶ 292, 295, 296.

20/ See Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 553 (1978) ("it is . . . incumbent upon intervenors who wish to participate to structure their participation so that it is meaningful, so that it alerts the agency to the intervenor's positions and contentions"); Salem, supra, ALAB-650, 14 N.R.C. at 50 (1981), citing Public Service Electric and Gas Co. (Salem Nuclear Generating Station, Units 1 and 2), ALAB-136, 6 A.E.C. 487, 489 (1973); Pennsylvania Power & Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-563, 10 N.R.C. 449, 450 (1979) (while pro se intervenors are not held to those standards of clarity and precision to which a lawyer might reasonably be expected to adhere, they are obligated to familiarize themselves with the Commission's Rules of Practice).

21/ For example, TMIA refers to 102 transcript pages of cross-examination of Licensee's rebuttal witnesses in support of the proposition that the Board barely questioned Licensee's witnesses who testified on Contention 5. TMIA Brief at 8. A review of these transcript pages reflects the fact that the Board actively cross-examined the panel of witnesses. In addition, while TMIA may not have brought out information on cross-examination which was favorable to its case, Ms. Bradford did cross-examine these witnesses. See Tr. 13,534-56; 13,561-73.

TMIA claims that the Board violated due process in not appointing an independent expert to assist TMIA in the development and presentation of its maintenance contention, TMIA Contention 5. TMIA Brief at 3-4. As the Appeal Board made plain in its August and December, 1981 Summer memoranda, "independent consultants should not be called upon to supplement an adjudicatory record except in 'that most extraordinary situation in which it is demonstrated beyond question that a board simply cannot otherwise reach an informed decision on the issue involved.'" South Carolina Electric and Gas Co. (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 N.R.C. 1140, 1146 (1981) citing 14 N.R.C. at 1163 (Appeal Board Aug. 27, 1981 Memorandum). In this instance, the Board was able to resolve the merits of TMIA Contention 5 on the record developed by the witnesses presented. Management PID at ¶¶ 277-348. There was no paucity of evidence presented on the maintenance allegations raised by TMIA. Id. Not only did Licensee and the Staff present witnesses on TMIA Contention 5, but TMIA subpoenaed Licensee employees to testify as TMIA's witnesses, including a highly qualified engineer. See n.26, infra; see generally Management PID at ¶¶ 279-281. TMIA's due process complaint is particularly hollow, given its failure to even cross-examine the NRC Staff witnesses who appeared to testify on TMIA's maintenance contention. Id.

TMIA also argues that the Board's requirement during the initial management proceeding that TMIA proceed with its

affirmative case on TMIA Contention 5 before the presentation of Licensee testimony "was extraordinarily unfair, and violated the fundamental Atomic Energy Act rule that the burden of proof in NRC licensing proceedings . . . rests solely on the Licensee." TMIA Brief at 4. TMIA neglects mentioning that the Licensing Board resorted to this procedure "because of 'a failure by TMIA to respond fully to Licensee's interrogatories on the contention' after approximately five months of discovery, motions to compel by Licensee, responses by TMIA, and Board orders granting Licensee's motions to compel." Management PID at ¶ 278, citing Board Memorandum and Order of Prehearing Conference of August 12-13, 1980 (August 20, 1980), at 3-4. Licensee's discovery requests had been designed to ascertain the factual basis for TMIA's broad claims of improper maintenance practices. The Board's accommodation, given these circumstances, was to require TMIA to first present its affirmative case. Licensee would then be able to discover for the first time the bases for TMIA's allegations and, thus, would be in a position to respond to them. Id. In sum, not only was the Licensing Board justified in utilizing this reverse order of presentation, but the Board was lenient in not dismissing TMIA Contention 5 despite TMIA's default. Id. at n.26. See 10 C.F.R. § 2.707.22/

22/ See generally Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 N.R.C. 452, 454 (1981); Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 N.R.C. ____ (June 17, 1982); Pennsylvania Power & Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 N.R.C. 317, 334-39 (1980).

For the first time on appeal, TMIA claims, without any supporting record citation, that during the reopened proceeding the parties were forced to rely on NRC Staff and Licensee investigations23/ to pursue leads, and that some of these (unspecified) investigations were not even produced until the discovery phase and the hearings were in progress. TMIA Brief at 58. TMIA neglects to mention that it joined the Aamodts in deposing fourteen Licensee and two contractor employees in order to pursue leads. See Tr. 23,412 (Milhollin: approving the taking of depositions). Thus, TMIA was not "forced" to rely only on the Licensee and the Staff. Moreover, Mr. Trunk's investigations of cheating on behalf of Licensee, and all but two of the I&E investigations, were not even conducted until September and October, 1981, and all completed reports were submitted promptly to TMIA and other parties.24/

23/ See pp. 134-135, infra, for a discussion of the adequacy of Licensee's cheating investigation.

24/ Edward Trunk and John Wilson were two principal individuals involved in Licensee's efforts to uncover and investigate cheating. See pp. 134-135, infra. The first three Trunk reports and related correspondence, see Lic. Exs. 70A-70D, were submitted to all other parties at the October 2, 1981 prehearing conference. The final Trunk report, see Lic. Ex. 70E, was completed on October 14, 1981, and submitted to all other parties on October 26. The majority of the interview notes prepared by John Wilson were also produced immediately after their completion on October 15, 1981, the remaining notes were produced on October 26. The NRC Staff investigations were submitted to all parties on August 14, (August 11 I&E Report); October 7 (July 31, 1981 OIA Report); October 21 (October 12 I&E Report); and October 28 (October 28 I&E Report).

III. THE MANAGEMENT PID

TMIA and the Aamodts have a number of complaints about the Licensing Board's findings in the initial Management PID of August 27, 1981. These complaints fall into the following three broad subject matter categories: (i) TMIA Contention 5 issues; (ii) Aamodt Contention 2 issues; and (iii) other management capability issues.

A. TMIA Contention 5

On pages 4 through 17 of its Brief, TMIA raises a number of issues which relate to the litigation of its Contention 5, concerning safety-related maintenance practices at TMI-1. See Management PID at ¶¶ 277-348.

1. Safety-related evidentiary standard. TMIA's first complaint is that the Board arbitrarily rejected TMIA evidence, and did not properly determine which maintenance items really were safety-related and, thus, within the scope of the hearing. TMIA Brief at 4-7, 11.

As TMIA suggests, TMIA's case on poor past maintenance practices at TMI-1 was based primarily on its review and interpretation of thousands of maintenance work request documents -- the paperwork utilized by the TMI-1 Maintenance Department to initiate, schedule, approve and conduct corrective maintenance at TMI-1. Tr. 2,638-62, 2,683-88 (Shovlin). It was TMIA's contention that out of this large volume of maintenance documentation, a selected sample of work requests, when reviewed for the

affected plant systems and the priorities given to the maintenance work, per se would establish that Licensee improperly, and at the expense of the public health and safety, deferred safety-related maintenance. Tr. 3,032-35 (Selkowitz). See Management PID at ¶¶ 282, 283. TMIA now challenges the Licensing Board's method for determining whether to admit into evidence the numerous work request document packages offered into evidence by TMIA. TMIA Brief at 4-7.

TMIA Contention 5 was limited to maintenance that was safety-related. A substantial amount of time was spent during the hearing clarifying the Board's and the parties' understanding of this concept. Initially, TMIA and Licensee agreed that safety-related was not equivalent to and should not be confused with safety-grade, or other terms of art frequently used in the industry. Rather, the parties agreed that, with respect to TMIA Contention 5, safety-related should be interpreted accordding to an ordinary dictionary definition of the term. Tr. 2,859-68 (Selkowitz, Blake).25/

TMIA describes the methodology proposed by TMIA's counsel for resolving whether particular maintenance work involved safety-related components as TMIA's "alternative means of

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25/ In its initial effort at weeding out of the mass of TMI-1 work request documents those work requests which supported its contention, no consideration was given by TMIA to whether the work request was safety-related, i.e., whether the work request activity itself or the system or component which was the subject of the work request activity, was safety-related. Tr. 3,317 (Bonetti); Management PID at ¶ 294.

determining safety-relatedness." TMIA Brief at 5. In TMIA's view, it was important to look not only at the nature of the component in question, but at the consequences of a major component failing to operate properly. TMIA appears to suggest that this "alternative" method was rejected by the Board. Id. In fact, however, the Board endorsed the very method proposed by TMIA; viz., the Board relied on the expert opinion of Mr. Joseph J. Colitz, the Manager of Plant Engineering at TMI-1 and one of the witnesses subpoenaed by TMIA, as to whether the particular maintenance activity identified in each work request offered into evidence by TMIA would be safety-related.26/ Mr. Colitz determined whether a particular maintenance activity was safety-related by looking at the particular component or the problem associated with it and the consequences of doing the work in question.

> If the act of doing the repair does not affect the integrity to the reactor coolant system boundary, if the component or system being taken out of service to do the repair is not required for safe shutdown of the plant, and if the inoperable component or system is not required for any accident conditions or mitigation of any consequences and releases to the public Mr. Colitz would maintain that the maintenance job is not safety-related.

26/ Mr. Colitz had worked at TMI-1 in a senior engineering capacity for approximately nine years, had been licensed as a senior reactor operator ("SRO") at TMI-1, and exhibited an impressive familiarity with the TMI-1 facility. Tr. 3,115-16, Tr. 2,994 (Colitz); Hukill et al., ff. Tr. 11,617, at 40-42; Tr. 3,115-16 (Jordan).

Management PID at ¶ 293, citing Tr. 2,994-95 (Colitz). Thus, contrary to TMIA's suggestion, Mr. Colitz's method encompassed the methodology proposed by TMIA's counsel and, as the Board indicated, was not an alternative, rejected method for determining safety-related maintenance. Id. at ¶ 294. Furthermore, contrary to TMIA's claim, see TMIA Brief at 5-6, not only was this approach fully consistent with the methodology advanced by TMIA, the use of Mr. Colitz's expert opinion for this purpose was expressly advocated by TMIA's counsel. See TMIA Brief at 5, citing Tr. 2,576 (T. Adler). See also Tr. 2,861-67 (Blake, Selkowitz); Tr. 2,573-79 (Blake, T. Adler).27/

TMIA is correct that the Board was free to arrive independently at its own conclusions as to whether maintenance systems were safety-related. TMIA Brief at 5-6. Contrary to TMIA's suggestion, however, the Board satisfied this responsibility by considering the view of Mr. Colitz, combined with its own technical expertise and non-technical judgment in applying the term, safety-related. Using a liberal admissibility standard, the Board then admitted into evidence a number of work request

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27/ Later on in the proceeding, during the course of Mr. Colitz's testimony on the work requests offered into evidence by TMIA, it became evident that TMIA disagreed with Mr. Colitz's views. Compare Tr. 3,487-88 (Selkowitz) with Tr. 2,847-50 and 3,134-35 (Colitz); compare Tr. 3,560-61 (Selkowitz) with Tr. 2,948-52 and 3,238-43 (Colitz). See Management PID at ¶ 292. Nevertheless, TMIA had earlier agreed to rely on Mr. Colitz's technical expertise to establish the consequences of failure of a particular component to operate correctly. Tr. 2,576 (T. Adler).

packages, including work requests which, in Mr. Colitz's view, had no potential safety significance. See Tr. 3,118, 3,113-35, 3,239-43, 3,249-51 and 3,175-79 (Colitz); Tr. 3,038 (Jordan); see generally, Management PID at ¶ 295.28/

2. Improperly deferred maintenance. TMIA contests the Board's finding of no evidence that Licensee had improperly deferred safety-related maintenance. TMIA Brief at 8-9, citing Management PID at ¶ 300. TMIA argues that this finding is inconsistent with the Board's previous findings in ¶¶ 297 through 299 of the Management PID. TMIA's analysis is faulty. While the Board indeed found delays in several maintenance jobs, at issue was whether these delays were significant, i.e., whether the delays had safety implications. No such problems were identified.

28/ TMIA correctly refers to portions of the transcript where the Board grappled with whether particular maintenance jobs were nuclear safety-related. See TMIA Brief at 6-7. However, TMIA's citations are either critically incomplete or completely inaccurate. Thus, while Chairman Smith struggled with the admissibility of TMIA Exhibit 34A-K, contrary to TMIA's reference to these work requests as an example of how the Board arbitrarily rejected specific work requests, the Board received these documents into evidence, albeit with some reluctance because of the close judgment call involved, and the contrary views of Mr. Colitz and the NRC Staff. See Tr. 3,719-32 (discussion of parties and Board). TMIA also mischaracterizes the evidence with respect to TMIA Exhibit 29A-D. While the Board did reject the exhibit, see Tr. 3,670-75, this rejection was not arbitrary. See, for example, Mr. Colitz's testimony concerning the non-safety-related nature of this maintenance work. Tr. 3,167-71 (Colitz). TMIA's reference to the Board's rejection of TMIA Exhibit 36 is similarly inaccurate. On the very page to which TMIA refers, the Board explained the bases for its ruling. See Tr. 3,775 (Smith).

3. Licensee's new corrective maintenance priority system. TMIA challenges as arbitrary and capricious the Board's finding that Licensee's new priority system for completing corrective maintenance work is adequate. TMIA Brief at 9-10; see Management PID at ¶¶ 282-289. TMIA's complaints are invalid. First, TMIA mischaracterizes the new priority system as "brief, ambiguous, and provide[s] little guidance to the individual assigning the priority." TMIA Brief at 9. The priority definitions themselves belie this allegation: they are detailed, specific and provide significant guidance on the kinds of maintenance which fall into each of the four priority classifications. See Lic. Ex. 2; see also Shovlin et al., ff. Tr. 13,533, at 39-49. Moreover, "the individual assigning the priority" is now the Manager of Plant Maintenance or his designee, not the initiator of the work request, as was the case under the old priority system. Tr. 3,071-72, 2,676-77, 3,097 (Shovlin); Shovlin et al., ff. Tr. 13,533, at 40-41. Thus, in contrast to the old system, individuals experienced in prioritizing plant maintenance, with perspective on the appropriate priority of work, utilize the new priority assignment system. Furthermore, joint Maintenance and Operations Department oversight is maintained on the appropriate prioritizing and scheduling of work. Id. at 45-47.

TMIA refers to the testimony of a former maintenance worker in support of the proposition that the priority system is still confusing. TMIA Brief at 9-10. A review of the witness' testimony simply confirms the ambiguity in the old priority

system, which defined priority work as "urgent," and the reasonable response of the witness that he did the job when he was told to do so by the shift supervisor. Tr. 3,615 (Leakway).29/

In summary, while TMIA criticizes the new priority system for its subjectivity, TMIA fails to explain how one could avoid making judgments in assigning priorities to work, or why one would possibly want to do so. In arguing that the new system is only different in form, and not substance, TMIA ignores the fact that the real problem with the old system was not the accomplishment of important work -- this was resolved through daily meetings held by Operations and Maintenance personnel. See n.29. Nor was the problem routine abuse of the old system. Contra TMIA Brief at 10. Rather, the problem was the limited usefulness of the broad and vague old priority designations assigned to maintenance work by the work request originator, including all site personnel (e.g., utility maintenance workers who did janitorial work). Shovlin et al., ff. Tr. 13,533, at 51; Tr. 3,071-72, 2,676-77 (Shovlin). The new priority system corrects this problem.

29/ This witness' testimony is also consistent with the past system of not following the priority designated on the work request but, instead, prioritizing work at regular plan-of-the-day and 1600 hour meetings attended by senior Operations and Maintenance personnel. Lic. Ex. 29, at 11-14; Shovlin et al., ff. Tr. 13,533, at 45-50; Tr. 2,701-03, 3,085-86, 3,100 (Shovlin); see generally Management PID at ¶¶ 285-286.

4. Maintenance record-keeping practices. TMIA contends that the record-keeping problems associated with the old priority system have not been corrected, and the Board has not explained how the new system will avoid the duplicate work request problem. TMIA Brief at 11-14. This viewpoint simply ignores the Board's detailed discussion of the record-keeping problems associated with the old maintenance priority system, see Management PID at ¶¶ 94, 285, 301-319, and the reasons why the Board has confidence that the new computerized system will be effective in avoiding these past problems. In summary, through the use of rapid retrieval of information in various computerized formats, and administrative and management controls in tracking and scheduling maintenance, the Board found that there was reasonable assurance that the identified record-keeping problems would be solved.30/ See Management PID at ¶¶ 288, 310-315. TMIA does not challenge any of these findings,31/ focusing instead on the capability of

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30/ It should be noted that, despite the past record-keeping problems conceded by Licensee, Licensee's records under the old system were found by I&E to be auditable, on the basis of information independently obtained by I&E in a management appraisal inspection as well as information gathered from routine maintenance inspections conducted during 1978. Keimig and Haverkamp (Sample Year 1978), ff. Tr. 16,412, at 1-3; Keimig and Haverkamp (TMIA 5), ff. Tr. 16,412, at 2-3. See Management PID at ¶¶ 303, 314.

31/ TMIA does argue that the Board's suggestion that the Staff inspect the new computer system six months after restart is inadequate and an "unresolved safety item[]." TMIA Brief at 13-14. Here, TMIA misuses the Board's finding, which was simply that the effectiveness of the new computer system, of which the Board approved, could only be confirmed over time. The Board therefore pointed out the importance of the Staff's routine inspection program to verify this finding which was "to some extent necessarily predictive." Management PID at ¶ 315.

Licensee's maintenance managers, an issue not previously raised by TMIA.32/ While TMIA is correct that the Manager of Plant Maintenance at TMI-1 has not changed, TMIA ignores the fact that the improvements in the maintenance system found satisfactory by the Board were initiated by this individual before the issue of maintenance became the subject of public inquiry. Shovlin et al., ff. Tr. 13,533, at 21, 40. Furthermore, TMIA's complaint is wholly dependent on its exaggerated characterizations of the past record-keeping problem at TMI, viz., a "blatant" problem of "magnitude" and "significance," TMIA Brief at 11-12, which TMIA does not reconcile with the fact that after carefully inspecting scores of maintenance documents, the Board found that none of the record-keeping problems disclosed any safety problems in the actual work performed. Management PID at ¶ 314.33/ In its discussion of record-keeping, TMIA also grossly mischaracterizes the Board's interest in the issue by quoting Chairman Smith out of context. See TMIA Brief at 12, quoting Tr. 3,598 (Smith). While Mr. Smith was concerned about the extensive amount of hearing time devoted to the record-keeping issue, he also initiated the Staff's investigation into the auditability of

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32/ In its blithe reference to the lack of maintenance management capability, TMIA cites its discussion in § II,B,1 of its Brief. Licensee assumes this reference is to § III,C,1, in which the capability of the Manager of Plant Maintenance, Mr. Shovlin, is briefly attacked. See TMIA Brief at 21.

33/ TMIA later suggests that this Board finding was based solely on the NRC Staff audit, which is clearly not the case. Compare TMIA Brief at 13 with Management PID at ¶¶ 295-314.

Licensee's maintenance records and clearly articulated the Board's concern about these matters. See, e.g., Tr. 3,896, 3,899-900 (Smith). See also Management PID at ¶ 302.

TMIA next challenges the adequacy of the staff audit of maintenance at TMI-1. See TMIA Brief at 13. First, they fault the Board for not seeking further evidence -- although, in fact, it did. Second, TMIA discounts this evidence by mischaracterizing the Board's view of it. Contrary to TMIA's assertion, while the Board initially was concerned about the Staff's review of record-keeping, the Management PID reflects the Board's subsequent satisfaction with the additional Staff testimony presented to respond to the Board's concern. See Management PID at ¶¶ 303, 314. Third, TMIA faults the Board for TMIA's own failure to cross-examine the Staff witnesses on this subject. See Tr. 16,408 (Smith).

Moreover, TMIA has muddled the issue here in claiming that the Staff audit is invalid because the Staff "did not have a correct concept of safety-related work." TMIA Brief at 13. Even if one assumes that TMIA's definition of "safety-related" is broader than the Staff's definition, the fact remains that the Staff conducted a thorough audit review of a significant number of safety-related maintenance activities, and found that Licensee had satisfactorily identified and performed safety-related work requirements. The Staff also found that the record-keeping associated with these maintenance activities was complete and auditable. Keimig and Haverkamp (Sample Year 1978), ff. Tr.

16,412, at 4-11 and Table A. Contrary to TMIA's suggestion, the I&E audit served to confirm the Board's independent finding that, although TMIA had surfaced record-keeping problems in their extensive examination of TMI's maintenance records, none of these problems had any safety significance.

5. Maintenance overtime. Pages 14 through 18 of TMIA's Brief are devoted to the TMIA allegation, unsuccessfully advanced before the Licensing Board, that Licensee used excessive overtime in performing safety-related maintenance, to the detriment of the public health and safety. See TMIA Contention 5(b)(6) cited in Management PID at ¶ 277. In summary, after analyzing the evidence presented by TMIA, the NRC Staff and Licensee, as well as the testimony of a Board witness, the Board found that while extensive overtime was used during plant outages, this was a normal practice, generally recognized and accepted in the industry. Moreover, the record did not establish any adverse effect from overtime upon safety-related maintenance. See Management PID at ¶¶ 331-347.

TMIA's complaints about the Board's resolution of the overtime issue rests on the assumption that the testimony of Mr. Reismiller, a witness proferred by TMIA, was entitled to more weight than the testimony of two other maintenance workers who testified on this subject. See Management PID at ¶¶ 335-338 (Board summary of testimony of three witnesses). TMIA fails to mention, however, that one of these two other witnesses was picked at random by the Licensing Board from a list, prepared by

TMIA, of individuals who had worked extensive overtime. Tr. 4,138 (Smith); see TMIA Ex. 44(a-k). TMIA also omits reference to the independent findings of the I&E inspectors that there was no basis for concluding that overtime adversely affected the quality of safety-related maintenance work at TMI-1. Keimig and Haverkamp (TMIA 5), ff. Tr. 16,412, at 11-13; see Management PID at ¶ 342. Furthermore, TMIA advances positions which are not supported by the record on which TMIA relies.34/

34/ For example, TMIA refers to statements in the record which allegedly establish that Mr. Arnold displayed a callous disregard for the welfare of the workers and which, as TMIA put it, seriously indict upper management. TMIA Brief at 16-17. However, TMIA inaccurately cites the record. First of all, the statement Mr. Reismiller attributes to Mr. Arnold was, "you were working for a public utility, and you owe a service to the public, and it is our job to get this on line as fast as possible to serve the public." Compare Tr. 4,171 (Reismiller) with TMIA Brief at 16. Moreover, it was not Mr. Reismiller's testimony, contrary to TMIA's suggestion, that Mr. Arnold stated that "the faster the plant is back on line, the faster we are making money." See TMIA Brief at 16, citing Tr. 4,183. This similarly uncorroborated statement (or a statement close to this) was attributed by Reismiller to an unspecified "they." In sum, as the Board stated, Mr. Reismiller's testimony about his conference with Mr. Arnold on overtime does not, as alleged by TMIA, support the inference that top management put profits ahead of safety. Management PID at ¶ 343, citing Tr. 4,171-72, 4,178-79 (Reismiller).

See also TMIA's oversimplification of the record with respect to Mr. Reismiller's leaving the company "under feelings of duress due to forced compulsory overtime." TMIA Brief at 15. In fact, the record established that Mr. Reismiller had high blood pressure, and experienced pressures at TMI related to his union activities. Tr. 4,181, 4,190-91 (Reismiller). These factors may have contributed to Mr. Reismiller's stated inability to "handle" overtime. Tr. 4,178 (Reismiller). Moreover, Mr. Reismiller did not work very much overtime -- a fact established by Mr. Reismiller's overtime records -- which suggests that overtime was not forced upon him. Shovlin et al., ff. Tr. 13,533, attachment 12; Tr. 4,174 (Reismiller).

What really troubled Mr. Reismiller about overtime practices at TMI was an incident in which a letter was put in Mr. Reismiller's file for, in his view, his failure to work overtime. Tr. 4,177 (Reismiller). While Mr. Reismiller and TMIA are very critical of Licensee for allegedly coercing people into working overtime by putting a letter in their file, this view of the facts cannot be reconciled with the very letter in question, which states that it was prompted by the recipients' failure to notify their superiors prior to not showing up for pre-arranged and schedule work during an outage when they were counted on to do so. Compare Shovlin et al., ff. Tr. 13,533, at 71 and attachment 10 with TMIA Brief at 16. But see TMIA recognition, TMIA Brief at 17, that "workers could be excused from work with sufficient notice." The letter advised employees of Licensee's expectation, consistent with the union contract, that employees were expected to report for pre-arranged work -- hardly an unreasonable management practice. Shovlin et al., ff. 13,533, at Attachment 10.

In summary, the Board found the issue of what constitutes too much overtime to be a highly subjective question.35/ See Management PID at ¶ 341. Clearly, however, the evidence did not support TMIA's allegation that overtime was abused such that there was an adverse impact on safety-related maintenance.

35/ Contrary to TMIA's assertions, the Board carefully explained why it concluded that additional witnesses on this subject would not be useful. Compare Management PID at ¶ 339 with TMIA Brief at 17.

B. Aamodt Contention 2

Aamodt Contention 2, which broadly attacked the adequacy of Licensee's training and testing program, see Management PID at ¶ 165, focused on a number of disparate subjects, the majority of which the Aamodts reargue in their Brief at ¶¶ 13-45. These sub-issues are addressed in turn.

1. The OARP Review Committee. The Aamodts first challenge the Board's reliance on the Report of the Operator Accelerated Retraining Program ("OARP") Review Committee and the testimony of two members of the Committee who testified on the training issue. Specifically, the Aamodts question the ability of Drs. Christensen and Gardner, experts in human factors engineering and educational psychology, respectively, to assess the adequacy of the OARP. The Aamodts essentially argue that the Board mischaracterized the findings of the Committee, and did not appreciate the problems identified by these experts. Aamodt Brief at ¶¶ 13-16; see Management PID at ¶¶ 233-240.

The OARP Review Committee consisted of five experts who were asked by Licensee to conduct an independent review of the intensive OARP conducted at TMI from August, 1979 through March, 1980.36/ Long et al., ff. Tr. 12,140, at 31-42; Lic. Ex. 27.

36/ The approximately 60 lesson or practice sessions of the OARP were divided into seven subject modules, including one week at the simulator, with each session consisting of four to five 8-hour days of training. Long et al., ff. Tr. 12,140, at 39-40; see generally Management PID at ¶¶ 196-204; Cheating PID at ¶¶ 2397-2400.

The Review Committee's assignment was to conduct a review analogous to accreditation reviews carried out by professional organizations, such as is done to accredit university engineering degree programs.37/ As the Aamodts appear to recognize, see Aamodt Brief at ¶ 16, the OARP Review Committee members each represented a different substantive area of expertise, the combination of which provided a multi-disciplined review of not only the substantive content of the OARP, but also of the training tools utilized, the teaching methods, the structure of the program, and the relationship of OARP training to the operator's job in the control room.38/ Lic. Ex. 27 at 1-4. The Aamodts are incorrect that "the Board overlooked the content of the [OARP Review Committee] report." Aamodt Brief at ¶ 16. Rather, the Board noted that numerous comments and suggestions were made by the Committee. Management PID at ¶ 203, citing Lic. Ex. 27 at 135-49; see also id. at ¶ 225 (Board discussion of OARP long-term recommendations for a replica simulator); id. at ¶¶ 261-262 (Board discussion of resolution of OARP criticisms of training facilities). The Board also recognized that overall, the Committee as a whole, and Drs. Gardner and Christensen

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37/ However, perhaps contrary to the Aamodts' understanding, this process did not determine whether the program met university curriculum standards. See Long et al., ff. Tr. 12,140 at 3; Tr. 12,225-26 (Long); cf. Aamodt Brief at ¶ 19.

38/ The Aamodts are wrong in suggesting that the Committee's conclusions are based only on a shallow review of the OARP. Compare Lic. Ex. 27 at 4-9 with Aamodt Brief at ¶ 15.

individually, endorsed the OARP. Id. at ¶¶ 203, 240, 235-236; Lic. Ex. 27 at 3, 141; Gardner, ff. Tr. 12,409 at 14; Christensen, ff. Tr. 12,409 at 11-13.39/

2. Instructor qualifications. The Aamodts next challenge the adequacy of the Board's consideration of the qualifications of the TMI licensed operator instructors. Aamodt Brief at ¶¶ 17-24. Laced throughout these Aamodt findings are conclusions drawn from the reopened proceeding, the implications of which we address below. See generally § IV, infra. In the initial proceeding, however, the only instructor qualification arguments advanced by the Aamodts were that the thermodynamics instructor should have a Ph.D., and that college-level courses in certain subjects are required and, therefore, instructors must have baccalaureate degrees. See Aamodt Brief at ¶ 19. These views were considered and rejected by the Board. Management PID at ¶¶ 261-62. The August 9, 1979 Commission Order, CLI-79-8, did

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39/ While the Aamodts point to statements made by Drs. Gardner and Christensen with regard to issues they were not especially qualified to talk about, Aamodt Brief at ¶ 14, these statements simply illustrate the care which these two Committee members took in reaching conclusions about the OARP, as exhibited during their cross-examination, with both individuals anxious not to testify on matters not within the scope of their expertise. Thus, Dr. Christensen could not address the issue of whether additional simulator training would be an improvement because, in his view, the answer to that question would depend on what other parts of the training program would be reduced, correspondingly, which was a subject outside of his area of specialty. Tr. 12,471 (Christensen). Similarly, Dr. Gardner is an educational specialist, not a nuclear engineer, and therefore could not answer Mrs. Aamodt's questions as to whether, having taken the OARP, an operator was qualified to operate TMI-1. Tr. 12,628 (Gardner).

not single out instructor qualifications for Board consideration, nor is any particular level of qualification required in that Order. Operator qualifications are the subject of Order Item 1(e), and adequate operator training, generally, is the subject of Order Item 6. Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), CLI-79-8, 10 N.R.C. 141, 144-45 (1979). The Staff did review the matter, see Staff Ex. 13 at 2, finding acceptable the TMI training structure and staffing. See also Tr. 12,189, 12,195-96, 12,199 (Knief) (Dr. Knief's uncontroverted testimony that his instructors are well qualified to teach the subject areas which they are required to handle, with guest lecturers supplementing the capabilities of the TMI instructor staff, as necessary); Tr. 12,191-97 (Dr. Knief's explanation of why licensed operators need not be proficient in advanced mathematics).40/

40/ As an afterthought, the Aamodts challenge the operator training program on the basis of the Board's ascribed reliance on mere course titles as a means of assuring itself that the training curriculum was adequate. Aamodt Brief at ¶ 26. The Aamodts refer to the Board's description of the content and length of the OARP program. See Management PID at ¶ 198. While the Board did rely on the summary description of the OARP provided in the testimony of Licensee's training witnesses, see Long et al., ff. Tr. 12,140, at 39-40, the Board also had the benefit of the detailed description of the program contained in the OARP Review Committee Report, Lic. Ex. 27, as well as the testimony of the Staff that the OARP met the requirements imposed by the Commission's August 9, 1979 Order, and exceeded current NRC requalification requirements. Staff Ex. 1, at C6-6; Boger, ff. Tr. 12,770, at 2-4; see generally Management PID at ¶ 204. Of course, with respect to Licensee's regular initial and requalification operator training programs, the Board reviewed the curriculum at length during the initial management proceeding, id. at ¶¶ 176-195, and, during the reopened hearing, received into evidence, for purposes of reviewing the administration of these pro-

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3. The PQS audit. The Aamodts incorrectly assert that the Board gave no weight to the outcome of the PQS audits -- the comprehensive exam given by independent testing experts to TMI-1 licensed operators to "mock" and, hence, further prepare operators to take the NRC license examinations.41/ Aamodt Brief at ¶ 27; see Long et al., ff. Tr. 12,140, at 40; Kelly, ff. Tr. 12,409 at 6-9; cf. Tr. 20,605 (Newton). In fact, the Management PID reflects the fact that on the basis of the outcome of these written and oral tests, the President of PQS Corporation was of the opinion that overall, the TMI-1 licensed ROs and SROs demonstrated a high degree of knowledge of how to operate the unit safely and effectively. (The average overall grade on this practice exam was 84.1%, with the average grade of 87.1% on the Category T portion of the test. Kelly, ff. Tr. 12,409, at 9-10.) See Management PID at ¶ 229. With respect to the controversial issue42/ of pass rates on the Category T tests, this issue was mooted by a subsequent commitment by Licensee to retest operators who failed the initial PQS Category T test and by the Licensee's

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grams, the RO and SRO replacement operator training program and the RO requalification program. Lic. Exs. 60-62.

41/ These exams were intended to be more stringent than the NRC exams in order to better prepare the operators for the anticipated license exams. Kelly, ff. Tr. 12,409, at 6, 7.

42/ The Board did find that the data on grades for the PQS and subsequent makeup tests on one portion of the PQS exam, Category T, was at times confusing and appeared inconsistent, although not materially so. Management PID at ¶ 231.

assurances that its staffing commitment, which the Board endorsed, would be met. Compare Aamodt Brief at 27 with Management PID at ¶¶ 231-232.43/

4. Nonlicensed personnel. The Aamodts inaccurately state that the Board failed to develop any significant record on training of nonlicensed personnel. Aamodt Brief at ¶ 34.44/ The Board did assess the nonlicensed training program. See Management PID at ¶¶ 164, 172, 208-218, 363, 366, 376. In support of this allegation, the Aamodts cite an NRC Staff inspection report conducted in July and early August, 1980 (not November), which is appended to the first supplement to the restart SER, NUREG-0680. See Staff Ex. 4. While NUREG-0680, Supp. 1 does state that as of November, 1980, the issue of nonlicensed operator training remained open, this issue was resolved to the Staff's satisfaction by March, 1981, as indicated in the second supplement to the restart SER. See Lic. Ex. 13 at 2-4. See also Staff Ex. 14

43/ The Aamodts also challenge the Staff's ability to ensure satisfaction of the Board's condition in the Cheating PID on auditing training, given the Staff's allegedly false assurances with respect to the use of the Category T "audit." Aamodt Brief at ¶¶ 31-32. This concern of the Aamodts was addressed in detail by the Board. See Management PID at ¶¶ 273-274. In essence, when restart became significantly delayed, and the NRC operator license exams were deferred, the Staff no longer viewed the Category T portion of the PQS exam, taken in April, 1980, as a qualification exam because operators could complete the requirement in the ample time available before restart.

44/ This issue was not the subject of any of the Aamodts' exceptions, as far as Licensee can determine, nor was it an issue in which the Aamodts expressed particular interest during the hearing. See Management PID at ¶ 243.

(NUREG-0680, Supp. No. 3), at 46-47. See generally Management PID at ¶ 224.

Paragraphs 35-37 of the Aamodt Brief generally challenge the Staff's use of the qualification requirements set forth in ANSI/ANS 3.1 (1978). The record citations on which the Aamodts rely relate only to nonlicensed personnel qualifications. The Aamodts suggest that the Board inaccurately cited the record in ¶ 164 of the Management PID. Contrary to the Aamodts' claim, the Board accurately summarized the findings of the NRC Staff that, with respect to nonlicensed personnel, Licensee had implemented an adequate training program which complied with ANSI/ANS 3.1 (1978), and that the TMI-1 plant staff generally met the guidelines for management structure and technical resources set forth in draft NUREG-0731. See Crocker and Allenspach, ff. Tr. 12,653, at 5-9. Contra Aamodt Brief at ¶ 36. While the Aamodts complain about the Board's acceptance of these qualification requirements, arguing that ANS 3.1 predated the TMI-2 accident, the Aamodts ignore the fact that application of the 1978 ANS standard to TMI-1 personnel constituted an upgrade in qualification requirements, that the later draft ANS standard had not been finalized nor had the Regulatory Guide which relies on it,45/ that some of the qualification requirements described in the new standard already have been applied to licensees including

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45/ The 1979 draft of ANSI/ANS was not finalized until December 17, 1981 and has not yet been endorsed in final regulatory guidance.

GPU Nuclear, and that the full implementation of the post-TMI-2 accident standards is one of the Staff's long-term action items. Crocker and Allenspach, ff. Tr. 12,653, at 5-8. Furthermore, the Aamodts do not point to any specific, needed qualification upgrades, much less provide a justification for such needs.

5. Simulator training. Paragraphs 39-46 of the Aamodts' Brief are devoted to one of the Aamodts' major concerns during the restart proceeding, simulator training. See generally Management PID at ¶¶ 252-258. In the Aamodts' view, the Board has misinterpreted the Commission's August 9, 1979 Order, and Licensee has not fulfilled the Commission's requirements. Aamodt Brief at ¶ 40.

With respect to the Aamodts' belief that all operators are required to be tested on the B&W simulator prior to restart and that the Board improperly rejected their untimely motion on this subject, Aamodt Brief at ¶¶ 40-42, the crux of the matter is that regardless of the Aamodts' belief, a Staff witness testified that all TMI-1 licensed operators would not be required to be tested at the B&W simulator.46/ Tr. 20,755-56 (Aamodt, Crocker).

46/ Licensee has committed, and the Board required as a restart condition, that all newly licensed TMI-1 operators, who had never manned the control room while the plant was in operation, be tested at the B&W simulator by the NRC Staff. Lic. Ex. 56 ¶ 2.a; Management PID at ¶¶ 250, 583(3). In addition, the previously licensed TMI-1 operators were evaluated on a pass/fail basis by B&W simulator personnel. Tr. 12,264-65 (Long). Since the record was closed in this proceeding, the NRC Staff has issued new generic simulator exam guidance which states that NRC-administered simulator exams will be used only for operators at plants with plant-specific simulators. For plants without a plant-specific simulator, such as TMI-1 that relies on the B&W

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Consequently, their failure to pursue this issue through cross-examination and timely findings on the subject was their own doing. In any event, this belatedly raised issue was addressed in detail by the Board in the Management PID at ¶¶ 542-548.

The Aamodts also argue that the Board should not have found that Licensee's simulator training requirements satisfactorily met the Commission's August 9, 1979 Order Item 1(e). Aamodt Brief at ¶¶ 43-44. First of all, the Aamodts have mischaracterized the extent of simulator training received by TMI-1 operators. While the annual retraining requirement is one week, new licensed operator candidates spend additional weeks in the B&W simulator training program47/ and, following the TMI-2 accident, licensed operators attended two simulator training sessions which focused on loss-of-feedwater incidents and integrating multi-failure scenarios, respectively. Long, et al., ff. Tr. 12,140, at 29-30; Tr. 12,156-57 (Long); see Management PID at ¶ 254.48/

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simulator for training, the NRC Staff will utilize oral and written exams for initial, replacement and requalification licensing. See Generic Letter 82-18, October 12, 1982, from Darrell G. Eisenhut, Director, Division of Licensing, Office of Nuclear Reactor Regulation, to All Power Reactor Applicants and Licensees, enclosing SECY-82-232 (June 7, 1982) with attachments. On information and belief, counsel can state that all presently licensed TMI-1 operators have been licensed in accordance with Licensing Board Condition (3). See Management PID at ¶ 583(3).

47/ In 1980, new licensed operator candidates spent 8 weeks at the simulator.

48/ Licensee does not understand the Aamodts' reference to a simulator hour recommendation contained in NUREG-0660. Aamodt Brief at ¶ 43. We are unaware of any such recommendation.

In addition, in contrast to the Aamodts' unsupported claim that the amount of simulator training provided to TMI-1 operators is inadequate, Dr. Long (the former Director of Training & Education who is now GPU Nuclear's Vice President of Nuclear Assurance), and Mr. Frank Kelly (the President of PQS Corporation who has been involved in licensed operator training for some twenty years), found satisfactory Licensee's annual requirement of one week of simulator training. Tr. 12,154-56 (Long); Kelly, ff. Tr. 12,409, at Appendix A; Tr. 13,743 (Kelly). See generally Management PID at ¶ 256. While the Aamodts may remain perplexed about this, the record establishes that all required reactivity control manipulations are performed, either at the simulator or on the job. Compare Aamodt Brief at ¶ 44 with Long et al., ff. Tr. 12,140, at 36; see Management PID at ¶ 194.

Finally, with respect to the need for an exact replica simulator, the only issue in controversy is whether this equipment is necessary prior to restart. While the Aamodts vociferously contend that an exact replica simulator is a necessary short-term action item, none of the experts agreed with this Aamodt opinion. See Lic. Ex. 27 (OARP Committee Report), at 144; Tr. 12,149-50 (Long); cf. Tr. 12,512 (Christensen); Staff Ex. 1 at C6-6-7; Boger, ff. Tr. 12,770, at 204. See generally Management PID at ¶¶ 252-257, 551.

C. Other Management Issues

1. Licensee's command and administrative structure. In its brief, TMIA complains that the Licensing Board's resolution of CLI-80-5, Issue (1)49/ was inadequate. TMIA Brief at 19-21. Their complaint is that the Licensing Board relied on the evidence of record which was provided through testimony and exhibits of Licensee and the Staff, and that the evidence was incompetent, inadequate and unreliable. Id. In essence, they fault the Licensing Board for its not having conducted a more probing inquiry of this subject, in the absence of expressed intervenor interest and participation.

In an introduction to this section of its brief, TMIA Brief at 18-19, TMIA states that (i) no intervenor had contentions related to Issues (1), (6) or (10) and thus it fell to the Board "to properly develop a balanced record"; (ii) management capability "is not supported by any relevant or reliable evidence"; (iii) TMIA was interested in these issues but was concentrating on maintenance; and (iv) the Board in the Management PID, unfairly attacked TMIA for its position on Issues (1), (6) and (10). TMIA is wrong in each of its assertions.

49/ Management Issue (1), promulgated by the Commission in CLI-80-5 as an issue to be determined by the Licensing Board in the restart proceeding, states: "whether Metropolitan Edison's command and administrative structure, at both the plant and corporate levels, is appropriately organized to assure safe operation of Unit 1." CLI-80-5, 11 N.R.C. at 408, 409 (1980).

First, there were at least two intervenor contentions which challenged Licensee's management competence generally. See Management PID at ¶ 37. Despite the fact that these issues were not very actively pursued by intervenors, Licensee nevertheless addressed them in testimony that was subject to examination by the parties and by the Licensing Board, and the Licensing Board considered the contentions. Id.; see, e.g., Arnold, ff. Tr. 11,434, at 2, 3. It is hardly timely for TMIA to complain that the questions by the Licensing Board and parties were not sufficiently probing. TMIA was not entering the hearing for the first time during the period when evidence was taken on these issues. It had been an intervenor since the earliest days of the proceeding and had not sought to contest these areas in its contentions. Its decision not to raise related contentions and not to conduct even minimal examination on these issues50/ is not grounds alone to say that the subject was not sufficiently aired. TMIA cannot blame the Licensing Board for TMIA's own shortcomings, particularly since the Board did conduct questioning of witnesses on these issues, as did other parties. See, e.g., Tr. 11,537-76 (Board examination of Arnold); Tr. 11,483-506 (Commonwealth examination of Arnold); Tr. 13,263-81 (Board examination of Lee); Tr. 13,300-23 (Board examination of Wegner

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50/ TMIA clearly had the right to cross-examine, even though it had no contention in the area. See Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 A.E.C. 857, 866-69 (1974).

and Miles); Tr. 13,285-92 (Commonwealth examination of Wegner). Finally, TMIA's citation to two portions of the Management PID as improperly attacking TMIA for its positions in Issues (1), (6) and (10) is simply nonsense. The first cited paragraph (¶ 97) deals with TMIA's position on maintenance matters -- the subject TMIA did pursue -- and the second cited paragraph (¶ 491) doesn't mention TMIA.

TMIA next discusses the evidence on Issue (1) and challenges the adequacy of the record. TMIA Brief at 19-20. TMIA opines that the only witnesses to address this issue were Staff and Licensee witnesses. They are correct; no other witnesses appeared and no other evidence was adduced which was contrary to Licensee's and the Staff's position that Licensee's organizational structure is appropriate. See, e.g., Arnold, ff. Tr. 11,434, at 8-10, 28-29; Tr. 11,528 (Arnold); Keimig, ff. Tr. 11,946, at 7-8, 15; Tr. 11,981, 11,983 (Crocker); Tr. 12,028 (Haverkamp); Lee, ff. Tr. 13,251, at 11-12; Tr. 13,270, 13,274-76 (Lee); Wegner, ff. Tr. 13,284, at 8-11. Recognizing this, TMIA then attempts to dismiss the wealth of evidence supportive of Licensee's organizational structure. They suggest the NRC Staff's witnesses were incompetent, that Licensee's consultant witnesses from BETA were incompetent, that Mr. William Lee, the President and CEO of Duke Power Company and Chairman of the Board of INPO was incredible and biased, and that "the only other" witnesses were Licensee's management. TMIA's position that the witnesses lack "management training" apparently is based on a

lack of cited management training courses in the witnesses' resumes of their educational backgrounds. This position ignores the many, many years of collective experience in management and with utility management represented by the various witnesses.

TMIA's position is extraordinary. They admit that all witnesses were supportive and diverse, including (1) Licensee management who themselves have considerable management experience, see, e.g., qualifications of R. C. Arnold, ff. Tr. 11,343, at 1; (2) NRC Staff reviewers51/ of Licensee's proposed organization, who were the authors of the Staff guidance document to utilities on proper management structure and represented the Staff's collective experience with management matters, see Management PID at ¶ 64 and transcript citations therein; and (3) Mr. William Wegner of BETA, a four-member consulting firm to GPU whose personnel had conducted a detailed assessment of GPU's organization spanning some fifteen months.52/ TMIA admits Mr. William Lee is competent to assess a utility's management

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51/ TMIA also attacks NRC's I&E personnel's endorsement of Licensee's organization, stating the on-site resident inspector's "objectivity . . . was questioned." TMIA Brief at 20. This is a gross mischaracterization of the record. Indeed, the Licensing Board members (who TMIA faults for not probing) did question the inspectors about their objectivity to satisfy themselves, but the result was the Board's statement that "there is no problem there" and "it is reassuring to know that [I&E has] given it a lot of thought." Tr. 12,025-30, particularly Tr. 12,030 (Smith).

52/ Each of the four principals of BETA have had some twenty-five years in the Naval Reactors program and Mr. Wegner himself was Admiral Rickover's deputy for fifteen years. Wegner, ff. Tr. 13,284, at 1-5, Attachment 1 at 2.

organization, but argues that he was biased because of his position in the nuclear industry and incredible because of his endorsements of individual members of Licensee management based on his first-hand observation of them for a period of time following the accident at TMI-2. TMIA Brief at 20. See Lee, ff. Tr. 13,251, at 1-4. They provide no supporting argument for either of their unfair attacks of Mr. Lee.

TMIA next attacks the Licensing Board's judgments regarding some individual members of Licensee's management. TMIA Brief at 21. They fault the Licensing Board for not considering past maintenance shortcomings at TMI in judging the head of maintenance, Mr. Shovlin. The record reflects, however, that past maintenance practices, as well as modifications and improvements in those practices which also were incorporated under Mr. Shovlin's direction, were considered at length by the Licensing Board. See pp. 31-33, supra; see also Management PID at ¶¶ 301-319. They fault the Licensing Board for relying on both the Staff's and BETA's statements that Licensee's senior management personnel are above the norm in the industry. There is no evidence to the contrary. They then fault the Licensing Board for its findings on competence and integrity of Messrs. Herbein and Dieckamp, but provide no citation whatsoever to the record. Mr. Herbein, of course, is no longer involved in the operation of TMI-1, and TMIA is aware of that. TMIA Brief at 27. Mr. Dieckamp's competence was never challenged by anyone and, as to his integrity, the only witness who was questioned on this

subject supported his integrity. Tr. 13,063-64 (Smith, Moseley); see also Management PID at ¶ 501; see generally, p. 58, infra.

2. Financial - technical relationship. TMIA, for the first time on appeal, challenges the adequacy of the evidence on Management Issue (6).53/ TMIA Brief at 22-23. The Licensing Board found this issue to be an uncontested matter. Management PID at ¶ 388. TMIA produced no evidence on this issue, it conducted no cross-examination of the witnesses who addressed the issue, and it filed no findings on the issue with the Licensing Board. TMIA is in default on this issue and its arguments should be ignored.

TMIA's arguments raised now on appeal demonstrate its ignorance of the evidence in this area. Its first complaint is that the Licensing Board relied on Licensee and Staff witnesses. TMIA Brief at 22. The short answer is that those are the only parties that produced witnesses on this issue. They next complain, without any citation to the record, that the Licensing Board ignored evidence on Licensee s use of overtime. Id. This ignores the Licensing Board's extensive treatment of the maintenance overtime issue. See Management PID at ¶¶ 331-348. See also pp. 34-36, supra. Next, again without a single supportive citation to the record, TMIA alleges that Licensee has high

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53/ Management Issue (6) states: "whether the relationship between Metropolitan Edison's corporate finance and technical departments is such as to prevent financial considerations from having an improper impact upon technical decisions." CLI-80-5, 11 N.R.C. 408, 409 (1980).

commitments of manpower and financial resources to its nuclear activities relative to other utilities because its operators are inefficient and equipment is in much greater disrepair than in most other plants. TMIA Brief at 22-23. This is total speculation on TMIA's part, announced now for the first time in this three-year proceeding. Finally, TMIA states that the evidence, that Licensee is a leader in resource commitment to nuclear in the industry, is unsupported by post-accident statistics. Id. at 23. In support, they cite a totally irrelevant statement by an NRC Staff witness concerning his views on the pre-accident management generally. See Tr. 12,104 (Crocker). In fact, Licensee's evidence contained both pre- and post-accident statistics on its applied resources, which compared favorably with resources available from others in the industry. See, e.g., Dieckamp, ff. Tr. 13,437, Tables 1 and 2 and Figures 1 and 2. In sum, TMIA's arguments regarding Management Issue (6) must be rejected both because they are procedurally improper, being raised for the first time on appeal, and because they are substantively incorrect.

3. Information flow. TMIA faults the Licensing Board for violating its duty to properly examine Management Issue (10).54/

54/ Management Issue (10) states: "whether the actions of Metropolitan Edison's corporate or plant management (or any individual member thereof) in connection with the accident at Unit 2 reveal deficiencies in the corporate or plant management that must be corrected before Unit 1 can be operated safely." CLI-80-5, 11 N.R.C. 408, 409 (1980).

TMIA Brief, at 23; see generally TMIA Brief, at 23-29. Management Issue (10) in the broadest sense, as the Licensing Board observed, Management PID at ¶ 466, encompasses the entire restart proceeding and the lessons learned from the accident and applied by Licensee in the areas of training, management organization, emergency planning, etc. The Licensing Board's decisions address the entire range of lessons learned and whether Licensee's responses were adequate. The Licensing Board reviewed the evidence on this issue and noted that intervenors presented no testimony. See, e.g., Management PID at ¶ 462. The Board pointed out that it did not constrain its consideration of Issue (10) to a minute-by-minute recap of the accident reviewed in detail by other investigators, but rather, focused on actions which impacted positively or negatively on management. To this end, the Licensing Board assessed Licessee's responses to Staff inspections and Licensee's internal reactions to the accident. Management PID at ¶ 463.

TMIA's quarrel with the Licensing Board's resolution of Management Issue (10) is that the Licensing Board did not adequately explore the question of information flow from Licensee during the first day of the accident. Specifically, TMIA points to Mr. Miller and Mr. Herbein and questions whether their disclosures to public officials were appropriate.55/ Their

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55/ TMIA also raises questions regarding the President of GPU, Mr. Dieckamp, owing to a mailgram he sent to Congressman Udall in May, 1979. TMIA Brief at 29. See discussion at pp. 56-57, infra.

request at this juncture is that "the Appeal Board should conduct a sua sponte review, and thoroughly examine on its own the raw materials available." TMIA Brief at 25.

The Licensing Board did not ignore this question. It considered the evidence before it, invited intervenors to produce their own evidence on it, and devoted some twenty pages of its decision to explaining its determination not to conduct its own detailed investigation in this area, in view of the investigations already done. See Management PID at ¶¶ 469-503. The Licensing Board's reasoning applies to the Appeal Board as well. What purpose now is to be served by reopening the record to hear from a number of witnesses56/ on the same subject that has been explored by a number of investigations? See Management PID at ¶¶ 491-93. The Licensing Board identified no evidence in any of the investigations that any such possible actions by individuals employed by Licensee at the time of the TMI-2 accident was part of a management decision to do so, e.g., a conspiracy or company approach. Management PID at ¶ 478. TMIA cites no such evidence now. As the Licensing Board noted, the concern devolves to two individuals, id., and neither individual is involved in the restart and operation of TMI-1. See Licensee Comments on Immediate Effectiveness of Partial Initial Decision (Reopened Proceeding) (August 20, 1982) ("Lic. Comments on Imm.

56/ The Licensing Board estimated some ten individuals would have to be called to discuss Mr. Herbein's role alone; it offered no estimate for Mr. Miller's role. Management PID at ¶ 491.

Eff.-Cheating") at 7, and Licensee counsel letter to Appeal Board of March 11, 1982. The Licensing Board also noted the Commission's own awareness of this subject and its election not to recommend further censure of individuals because of improper disclosure of information. Management PID at ¶ 492.

Two related arguments of TMIA call for response. The first is TMIA's claim that the Licensing Board blatantly erred in not receiving into evidence the Udall Report.57/ TMIA Brief at 24. Their citation, it should be noted, is to the very last day of the virtually continuous 10-month hearing. They fail to cite the Licensing Board's discussion in its decision where the Board points out that the matter of the Udall Report had been discussed months before, and the parties were reminded that they could present witnesses and evidence, including the Udall Report, provided they were timely and the Report had a sponsoring witness. See Management PID at ¶ 470. On the last day of the hearing, after having heard argument on TMIA's motion58/ that the Licensing Board "order" the Udall Report into evidence, and after having rejected that request on timeliness grounds, because of

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57/ The Udall Report is entitled, "Reporting of Information Concerning the Accident at Three Mile Island," prepared by the Majority Staff of the Committee on Interior and Insular Affairs, U.S. House of Representatives (March 1981).

58/ TMIA cites the NRC as endorsing the TMIA request. TMIA Brief at 24. The Staff in fact did not object to TMIA's request, but took the position that if the Udall Report were to be admitted, other reports including the Rogovin report on the same subject should be received as well by the Licensing Board. Tr. 22,965 (Tourtellotte).

the lack of a sponsoring witness, and because it was deemed inappropriate for official notice and no stipulation was agreeable to all parties, the Licensing Board for the first time was told by TMIA that a sponsoring witness would appear, if subpoenaed. Tr. 22,997-98 (Bradford, Smith). Coming as it did, at the eleventh-and-a-half hour, and months after TMIA's knowledge of the Report, and given the Board's awareness that it covered the same data base as other inquiries of the subject, the Licensing Board denied TMIA's request. The Licensing Board was aware of the Udall Report and had communicated with Congressman Udall about the Report. See Tr. 20,776-82 (Smith). The Licensing Board had determined that the Udall Report covered the same basic facts as the Staff investigative report, NUREG-0760. It was aware of and had read into the record the conclusion of the Udall Report on those facts.59/ See Tr. 13,038-39. TMIA, having waited for whatever reason until literally the last moment to offer the report through a sponsoring witness must live with its decision not to have presented this issue in a timely way. Cf. Prairie Island, supra, 8 A.E.C. at 864. The Licensing Board's rejection of TMIA's proffer when it came was appropriate.

The second related argument by TMIA is their view that the Licensing Board failed to conduct sufficient inquiry into the

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59/ Moreover, it did not ignore the remainder of the Udall Report and content itself only with reading the conclusion, as TMIA claims, TMIA Brief at 24, but rather reviewed the Report itself as evidenced by other references to it. See citations following ¶¶ 474, 475, 481 of the Management PID.

correctness of a mailgram from Mr. Dieckamp to Congressman Udall dated May 9, 1979. Here, TMIA cites the Licensing Board's observation that I&E left this matter dangling, Tr. 13,060, and goes on to fault the Board for not further pressing the matter. They ignore entirely the fact that the Licensing Board, in the hearing immediately following the citation by TMIA, went on to question the I&E investigative team leader on this precise point and that it was I&E's conclusion that Mr. Dieckamp believed the statement to be true when he made it in May, 1979. See Tr. 13,060-64 (Moseley). Their complaint that Mr. Dieckamp was himself not questioned on this subject places total responsibility on the Licensing Board. TMIA chose not to question Mr. Dieckamp when he appeared as a witness. Again, as with other untimely TMIA complaints at this juncture, it must live with the decisions it made. The basis for the Licensing Board's determination not to question Mr. Dieckamp on the mailgram is described in detail by the Board in its PID -- reasoning which TMIA does not challenge. See Management PID at ¶¶ 501-503.60/

4. Shift manning. The issue of operator shift manning was litigated in the initial management proceeding and resulted in

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60/ The Licensing Board did question whether its own decision was correct, unable as it was to ensure that Mr. Dieckamp had been questioned on this subject by I&E. As Licensee pointed out in our September 11, 1981 Comments on Immediate Effectiveness of Partial Initial Decision ("Lic. Comments on Imm. Eff.-Management") at 3-4, I&E investigators, including Mr. Moseley, had in fact questioned Mr. Dieckamp directly on this subject. See also Tr. 13,063 (Moseley).

detailed license conditions imposed upon Licensee pending implementation of the generic post-TMI-2 accident staffing requirements applicable to all operating licensees.61/ See Management PID at ¶¶ 556-579, 583(9). Licensee's commitment to this license condition was reaffirmed by Licensee in the reopened proceeding. Hukill, ff. Tr. 23,913, at 17; Tr. 24,075 (Hukill); see Cheating PID at ¶ 2044. The Aamodts simply repeat their position which was considered and rejected by the Board; viz., that Licensee should be treated as an NTOL for purposes of shift staffing, presumably because it is unsafe to have only one SRO on a shift.62/ Aamodt Brief at ¶¶ 47-55.

The Aamodts unsuccessfully pursued the position that two SROs are necessary on each shift.63/ As the Board's decision

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61/ The currently proposed implementation date for the new shift staffing requirements for licensees is January 1, 1983. See Proposed Rule, "Licensed Operator Staffing at Nuclear Power Units," 47 Fed. Reg. 38135 (Aug. 30, 1982) as amended in 47 Fed. Reg. 39836 (Sept. 10, 1982).

62/ The Aamodts also argue that attrition, cheating and the shift rotation schedule are important in deciding the issue of shift manning. However, regardless of attrition, Licensee must man the control room in accordance with its commitment. Secondly, while the issue of cheating might affect the number of operators available at TMI-1, it is not relevant to the issue of how many operators are needed on each shift. Finally, as to the optimum shift rotation schedule, as previously discussed, see n.19, supra, a six shift rotation is Licensee's preferred and anticipated schedule. Moreover, since a five shift rotation schedule would not adversely affect the level of control room manning -- in fact, it would most likely result in more licensed ROs and SROs on each shift -- it is also irrelevant to the shift manning issue, i.e., how many people bearing what qualifications should man a shift.

63/ The need for 40 licensed operators, as alleged in ¶ 50 of the Aamodts' Brief, is without any record foundation whatsoever.

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reflects, as a result of Licensee's shift manning commitments, Licensee will have four licensed operators on shift when the plant is operating, and the licensed SRO will be in, or within five minutes of reaching, the control room. Lic. Ex. 59; see generally Management PID at ¶¶ 564-573. In addition, a shift technical advisor, or STA, with a bachelor of science or engineering degree, is assigned to each shift. Hukill et al., ff. Tr. 11,617, at 28-29; see Management PID at ¶¶ 80-82. These commitments exceed the requirements now imposed on operating

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While the Aamodts quote Mr. Ross, the Manager of Plant Operations, in support of this requirement, Mr. Ross in fact stated, in response to questioning from Mrs. Aamodt as to his shift manning goal, (in contrast to what he believed was necessary), that he would like to "[e]ventually" have 18 ROs and 12 SROs, i.e., 30 (not 40) licensed operators. Tr. 24,250 (Ross). Thus, contrary to the Aamodts' claim, Mr. Ross did not state that he "would like 3 senior operators and from 4-5 operators per shift." Aamodt Brief at ¶ 50. The Aamodts also rely, understandably but mistakenly, on an NRC Staff meeting summary to support their view that 40 on-shift operators are necessary at TMI -- 3 SROs and 4 to 5 ROs per shift. See Aamodt Brief at ¶ 50. That document, dated June 28, 1979, is not in evidence, and no evidentiary explanation or discussion of it ever occurred during the hearing. On information and belief, it is a summary prepared by the NRC staff of a meeting between Licensee and the Staff shortly after the accident, at which Licensee committed to retraining members of its Staff who held TMI-1 licenses, which numbered approximately 40 at the time; it is not a commitment to use 7-8 operators per shift, as the Aamodts have interpreted it. Obviously, the approximately 40 licensed operators committed to be retrained by Licensee included not only licensed shift personnel but also licensed management and licensed training personnel, as is presently the case. See June 28, 1979 Meeting Summary on the Open Items Regarding TMI-1 Restart, by D.C. DiIanni, Project Manager, Operating Reactor Branch #4, Division of Operating Reactors, referenced in CLI-79-8 (August 9, 1979), 10 N.R.C. 141, 151.

licensees of three licensed operators per shift. Tr. 15,662 (Ross).64/

IV. REOPENED PROCEEDING

A. Introduction

Appellants' arguments on the Licensing Board's decision in the reopened proceeding generally fall into one or more of six categories: (1) general procedural and evidentiary questions; (2) the quality of the TMI-1 operating personnel; (3) TMI-1 management integrity; (4) training administrative practices; (5) management's response to cheating; (6) management's response to the 1979 incident; (7) Commonwealth concern with Licensing Board conditions; and (8) impact on design findings. Licensee will treat each category separately.

64/ While the Aamodts also argue about necessary levels of experience, Aamodt Brief at ¶¶ 49, 54, the fact is that candidate ROs and SROs must satisfy their respective required experience prerequisites before they can be trained as an RO or SRO or considered by Licensee for certification to take the NRC RO or SRO exam. Long et al., ff. Tr. 12,140, at 25-26, 37.

The Aamodts also restate their frustration with the Commonwealth's satisfaction with Licensee's shift manning commitment. Aamodt Brief at ¶ 89. As the Board suggested, it is difficult to understand the Aamodts' concerns, here, in view of the fact that the Aamodts recognized that their views on shift manning, as well as the other subjects of Licensee's commitments to the Commonwealth, were consistent with the views of the Commonwealth. Aamodt July 20, 1981 Reply Findings at ¶ 24. Thus, with Licensee having satisfied the Commonwealth on these matters, one would presume that the Aamodts similarly would be satisfied. In any event, the Aamodts' criticisms of the stipulation, set forth in their July, 1981 reply findings, were fully considered and rejected by the Board. See Management PID at ¶¶ 525-537.

B. General Procedural and Evidentiary Questions

1. Weight of the Special Master's Report. TMIA claims that the Board erred in reversing Judge Milhollin's findings which are based on witness demeanor and therefore entitled to great weight. TMIA Brief at 33-34. Licensee directly disputed this claim in its reply to comments of the other parties, see Lic. Reply to Comments on Imm. Eff.-Cheating at 7-8, noting, in essence, that when witness credibility is at issue, the conclusions of the Special Master with respect to the veracity of those witnesses do indeed take on an added importance, but must nevertheless be considered together with "the consistency and inherent probability of testimony." Universal Camera Corp. v. NLRB, 340 U.S. 474, 496 (1951). Licensee also noted that the Board clearly applied this evidentiary standard in its Cheating PID, stating:

> While of course we would afford some special weight to Judge Milhollin's direct observations of witness demeanor, where his conclusions are materially affected by witness demeanor, we have given especially careful consideration as to whether or not other, more objective credibility criteria are consistent with his conclusions.

Cheating PID at ¶ 2036. The Board's statement belies the suggestion by TMIA that the Board "fail[ed] to attach any significance whatever to Judge Milhollin's many findings of non-credibility," TMIA Brief at 51, or the suggestion by the Aamodts that the Board found Judge Milhollin's determinations of witness demeanor lacking in objectivity, and thus favored documents and "actual words." Aamodt Brief at ¶ 63.

2. Breadth of Reopened Proceeding. The restart proceeding was reopened by the Licensing Board in September, 1981 in order to assess the impact the discovery of cheating on the April, 1981 NRC license examinations by two TMI-1 SROs would have on the issues considered or left open in the Management PID.65/ See Licensing Board Memorandum and Order, Sept. 14, 1981. The scope of the reopened proceeding was delimited to a set of issues which ensured Board consideration of the effect on all relevant management issues of the April, 1981 cheating incident and subsequently raised matters, such as the possibility of cheating on the Category T tests. Licensing Board Memorandum and Order on October 2, 1981 Conference of the Parties Relative to Reopened Proceeding, Oct. 14, 1981, at 2-4; see Cheating PID at ¶ 2032. The restart proceeding was not reopened to relitigate the adequacy of the operator training curriculum which had been litigated at length during the initial management proceeding. The cheating incidents did not provide cause to re-examine these matters. Thus, the Board did not permit, and Licensee and the Staff did not present, any evidence on the substance of NRC's operator license exams or on the substantive adequacy of the training curriculum at TMI; these issues were considered only in the limited context of whether NRC's or Licensee's exams, because

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65/ The Board had issued its Management PID shortly after the discovery of the cheating incidents and, accordingly, had left open its conclusions on potentially affected findings and had retained jurisdiction to consider this new information. See Management PID at ¶¶ 43-44, 204 n.18, 584 n.63.

of their content, were amenable to defeat by some artifice or evasive device which would enable an examinee to pass a test without mastering the subject matter, such as copying, using crib sheets, being improperly coached or memorizing pre-identified exam questions. See Licensing Board Memorandum and Order on October 2, 1981 Conference of the Parties Relative to Reopened Proceeding, Oct. 14, 1981, at 5; Tr. 23,127-28 (Smith); Tr. 23,280 (Milhollin).

Notwithstanding this expressly stated limitation on the scope of the reopened proceeding, and without any recognition of the extremely limited factual basis on which he relied, the Special Master made far-reaching findings and conclusions on subjects which clearly exceeded the authority vested in him by the Licensing Board. These unfounded and inappropriate conclusions, which form the basis for many of appellants' arguments, see, e.g., Aamodt Brief at ¶¶ 23-26, UCS Brief at 18-23, include Judge Milhollin's lengthy discussion of the substantive quality of the NRC operator license exams, compare Cheating PID at ¶ 2366 with SMR at ¶¶ 285-287, and his criticisms of the content of Licensee's training program, compare Cheating PID at ¶¶ 2399,2410 with SMR at ¶ 251. See generally Licensee's discussion of the NRC exams and of the TMI operator training program at §§ IV.E, IV.F.5, infra.

3. Quality of operators' testimony. TMIA complains that despite "overwhelming" evidence to the contrary, the Board fully supported the overall quality of the operators' testimony. TMIA

Brief at 47, citing Cheating PID at ¶ 2043. TMIA's complaint is misplaced because the Board never made such a finding. Rather, the Board found that the operators generally performed well on tests and quizzes despite "demoralizing and stressful circumstances," Cheating PID at ¶ 2043, which finding is well supported by the record. See, e.g., Cheating PID at ¶¶ 2416-2417; Ross, ff. Tr. 24,127, at 5.

C. Quality Of TMI-1 Operating Personnel

1. Integrity and competence. The arguments of the Commonwealth, UCS and TMIA raise essentially three claims with respect to the integrity and competence of certain members of the TMI-1 operations and management staff:66/ (1) integrity i.e., honesty and candor, is as essential as competence to safe operation of a nuclear plant, see Commonwealth Brief at 16-20; UCS Brief at 6-7; TMIA Brief at 51-52; (2) a demonstrated lack of integrity as shown by cheating or lack of candor necessarily affects safe operation of the plant and merits some sanction, see Commonwealth Brief at 20-26; UCS Brief at 10-13; TMIA Brief at 51-52; and (3) the Board ignored, excused or gave insufficient weight to alleged lack of integrity when determining whether an individual, or whether GPU Nuclear management generally, has the requisite qualifications to operate TMI-1 safely, see Commonwealth Brief at 1, 26-33; UCS Brief at 14-18; TMIA Brief at

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66/ The Aamodts did not discuss this matter.

52-56. UCS concludes that such questionable integrity reflects poorly on upper management and thus indicates that Licensee lacks the competence and character to operate TMI-1 safely. UCS Brief at 17-18. TMIA and the Commonwealth both suggest that a demonstrated lack of integrity by certain TMI-1 staff members merits more severe individual sanctions than those imposed by the Licensing Board. TMIA Brief at 53-54, 56; Commonwealth Brief at 16, 26-33.

Before responding to the arguments on specific findings and recommended sanctions, Licensee responds generally to the first two claims put forth by these parties with respect to competence, integrity and safe operation of a plant. First, Licensee emphasizes its oft-expressed agreement with the proposition that in addition to competence, integrity is necessary to the safe operation of a nuclear facility. See, e.g., Tr. 23,611-14 (Arnold: the public must have confidence in the integrity of those who are utilizing nuclear technology); Tr. 23,983, 24,082 (Hukill: operator honesty is necessary, particularly with respect to filling out reports and other NRC documents). Licensee also notes the Board's agreement with this proposition. See Cheating PID at ¶¶ 2059, 2350-51 (new procedures properly will disallow certification of technically incompetent or ethically unqualified candidates for operator licenses).

According to the Commonwealth, however, the Board "agrees that lack of integrity alone, notwithstanding knowledge and competence, is a sufficient reason to deny a reactor operator's

license." Commonwealth Brief at 26 (emphasis added). Licensee believes the Commonwealth is reading the Board's decision much too narrowly. As the Commonwealth correctly notes, Licensee's certification process obligates a senior management official at TMI-1 to "take into consideration any information reflecting on the candidate's integrity and attitude" before certifying him or her to sit for an NRC exam. Cheating PID at ¶ 2350; see id. at ¶ 2059. Part of this "information," however, surely must consist of "mitigating factors," which the Board itself considered with respect to Messrs. G and H, see id. at ¶¶ 2118-20; Mr. GG, see id. at ¶ 2135; and Mr. Shipman, see id. at ¶ 2144. Such factors may convince a factfinder, whether a TMI official or a licensing board, that denial of certification or of a license is inappropriate. Thus, Licensee reads the Board's decision as holding that lack of integrity may be, but is not necessarily, a sufficient reason to deny or to suspend a reactor operator's license.

The issue then arises as to when a lack of integrity affects safety such that some action against a license is warranted. TMIA suggests, for example, that "cheating and disrespect for process and procedure" create a lack of integrity and a lack of integrity impacts on safety requiring some action against a license. TMIA Brief at 52. UCS claims that cheating and lack of honesty in one context impact on safety in other contexts; i.e., cheating on Licensee-administered quizzes and lack of candor in this reopened proceeding necessarily imply that honest and accurate reporting to the NRC on safety-related issues cannot be

assured. Some action must therefore be taken, at least against Licensee. See UCS Brief at 11-12. These concepts are far too simplistic to be useful.

Integrity and safety are not black and white matters that can be plugged neatly into an equation. Rather, they are complex concepts that can realistically be related only by balancing a number of factors, keeping in mind that what ought to be in a perfect world, is never what is in reality.67/ Compare Tr. 23,613 (Arnold: "I do not think that we can apply a standard for determination of integrity of absolute perfection. None of us can fulfill that standard. And yet I think undoubtedly all of us in this room consider ourselves people of integrity . . . .") with Commonwealth Brief at 17 (licensed operators must perform duties with great accuracy, which requires "absolute integrity").

The Commonwealth and UCS cite numerous cases which they claim support their position. However, close analysis of these cases reveals that the courts have dealt pragmatically with

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67/ Mr. Robert Arnold, President of GPU Nuclear Corp., recognizes that effective management of a large group of employees requires that a policy with respect to integrity must be made known, while at the same time, requires that policy breaches be handled fairly. The Company needs to know about problems, and if employees do not have confidence that they will be treated fairly and with the understanding that even the most dependable employees occasionally will falter, the consequences may be adverse to safety. Thus, upper management must balance the need to be sure employees understand that they will be held accountable for their performance, and the possible constraints this could have on their willingness to be candid if they believe disclosure would unfairly threaten their coworkers or themselves. Arnold, ff. Tr. 23,590, at 3-4.

individuals who have been found to lack some degree of integrity, and realistically have assessed the resultant safety consequences or lack thereof. These courts have considered the industry within which the incident(s) occurred, the nature of the incident in question, the degree of actual or potential danger directly caused by the incident, the surrounding circumstances and the mitigating factors. Sanctions have been applied accordingly.

Licensee fully agrees with the Commonwealth and UCS that the nuclear industry has a strict obligation to protect public health and safety, and that regulations must be closely adhered to. See, e.g., Hamlin Testing Labs, Inc. v. United States AEC, 357 F.2d 632, 638 (6th Cir. 1966); X-Ray Eng'r Co., 1 A.E.C. 553, 555 (1960). However, even in this heavily regulated industry, revocation or suspension of a license does not occur unless a regulatory violation has extremely serious safety consequences or is repetitive.

For instance, the Commonwealth correctly notes that in Hamlin Testing Laboratories, Inc., 2 A.E.C. 423 (1964), the then Atomic Energy Commission ("AEC") denied a license renewal application to perform radiographic testing because the licensee could not be relied upon to respond to proper inquiries with candor. Id. at 428. The Sixth Circuit upheld the Commission's action in Hamlin Testing Laboratories, Inc. v. United States AEC, 357 F.2d 632 (6th Cir. 1966), but the Commonwealth fails to note that this decision was made only after reviewing in detail no fewer than nine separate violations of license conditions or

applicable AEC regulations, including falsification of records, failure to maintain records, and allowance of unauthorized and potentially unskilled personnel to use radioactive materials. Id. at 635. Under these extreme circumstances, continued falsifications and regulation violations posed a direct threat to the safety of the radiographers as well as to the public. Id. See also X-Ray Eng'r Co., 1 A.E.C. 553, 555-56 (1960) (repeated violation of several NRC regulations and license conditions, and falsification of report claiming compliance with all regulations, merits refusal to renew byproduct material license; however, staff's recommendation that no new license issue for six months deemed too onerous).

On the other hand, in Advance Indus. X-Ray Laboratories, Inc., 1 A.E.C. 281 (1960), the Commission granted a license to use byproduct source materials despite less than strict compliance with NRC regulations, because the applicant had made sufficient procedural, technical and organizational advances within the company since taking it over from its prior troubled owner that the AEC was satisfied the personnel would comply with regulations and procedures. Id. at 284-85. Thus, less than perfect past compliance was acceptable as long as the Commission believed it could rely on the applicant's personnel in the future.

The Commonwealth looks to Civil Aeronautics Board ("CAB") licensing cases to illustrate four principles with respect to license suspension or revocation: (1) protection of public

safety is paramount when reviewing licenses; (2) license suspension or revocation properly may be based on lack of integrity; (3) license suspension or revocation may be based on lack of integrity, notwithstanding competence; and (4) license suspension or revocation may serve as a deterrent. Commonwealth Brief at 23-26. Unfortunately, the Commonwealth misses the trees for the forest. Although these general principles are sound, they merely provide a very broad framework within which to review facts. Contrary to appellants' arguments, a close look at the cases reveals that licenses have been suspended for short periods of time based more on technical violations than on lapses of ethics. Moreover, even the ethical violations are much more egregious and more directly related to safety than that which has been found at TMI-1. Finally, several of these license suspension decisions have been tempered by mitigating circumstances.

In Haines v. Dep't of Transp., 449 F.2d 1073 (D.C. Cir. 1971), for example, a pilot flew below the prescribed altitude without justification, violating a Federal Aviation Administration ("FAA") regulation proscribing flight "in a careless or reckless manner so as to endanger life or property." Id. at 1075. Despite the fact that no other aircraft was in the vicinity when the pilot flew too low and, as noted in the Commonwealth Brief at 25, the danger was only potential, the court found this an "inherently dangerous act," id. at 1076, and upheld the FAA's suspension of the pilot's airman certificate for two weeks. See also Cobb v. Nat'l Transp. Safety Board, 572 F.2d

202, 204 (9th Cir. 1977) (180-day suspension of pilots' airman certificates for "dogfighting" in and around airport upheld; conduct deemed "aggravated," producing "inherent and totally unnecessary hazard"). Persistance in attempting to land a plane when landing could only be accomplished through "acrobatic maneuvers" resulted in an accident and brought a six-month suspension of a pilot's airline transport pilot rating (precluding service as airline captain but allowing service as co-pilot) in Hard v. CAB, 248 F.2d 761, 763 (7th Cir. 1957), cert. denied, 355 U.S. 960 (1958). The sanction might have been more severe, but the pilot's carelessness was not deemed flagrant, he was generally qualified to fly, his past record was good and the accident itself was a deterrence to similar acts for the future. Id. at 764. Thus, contrary to the Commcnwealth's claim that this license suspension was justified despite competence, Commonwealth Brief at 24, this license suspension was actually reduced in severity because of competence.

While the three cases discussed above involve technical carelessness, the Commonwealth also cites cases involving ethics-related failures. These are somewhat similar to the TMI situation, although they all involve actions more directly related to safety than the actions at TMI-1. In Cowell v. Nat'l Transp. Safety Board, 612 F.2d 505 (10th Cir. 1980), a pilot advised the FAA in writing that he had no traffic violations when in fact he had several, and submitted false log books grossly overstating his flying time. In affirming the NTSB's revocation of his

airman and medical certificates for lack of qualifications, the court noted testimony of a flight surgeon on the medical significance of concealment of damaging personal information and the danger arising with overstatement of flight time. Id. at 507. Thus, although the Commonwealth correctly notes that the NTSB action was based on falsehoods indicating a lack of integrity, Commonwealth Brief at 24, the court was particularly concerned with the pilot's lack of qualifications and the dangers to crew and passengers arising therefrom.

The court manifested the same concern in Somlo v. CAB, 367 F.2d 791 (7th Cir. 1966), in which a pilot failed to take a flight test for a multi-engine rating and subsequently had an accident in a multi-engine aircraft. Id. at 792. In upholding a six-month suspension of his airman's certificate, the court held that "a pilot may not be permitted to disregard licensing requirements designed to insure technical skill and which have a substantial and close relationship to public safety." Id. at 793. Contrary to the Commonwealth's claim that this pilot was competent, Commonwealth Brief at 24, the court specifically noted that there was no way to know that he was qualified. Id.

These cases repeatedly illustrate that even when the highest technical and ethical standards are required of individuals, there are no clear-cut rules for sanctioning those who violate those standards. Courts are flexible and practical, tailoring their sanctions to meet the unique circumstances of each case.

UCS cites to a line of Federal Communications Commission ("FCC") cases as support for the proposition that principals may be held liable for misrepresentations of their subordinates, which misrepresentations could provoke license revocation. UCS Brief at 12-13. What UCS neglects to mention, however, is that in these cases, the principals either made the misrepresentations themselves, see Henry County Beverage Co. v. Sec. of Treasury, 454 F.2d 413, 414, 416 (7th Cir. 1971), cert. denied, 405 U.S. 1065 (1972) (president of company misrepresented and concealed material facts in application for permit in direct violation of statute); or acquiesed in the transmittal of false or misleading information by doing nothing to stop or correct it once discovered, see WADECO, Inc. v. FCC, 628 F.2d 122, 127-28 (D.C. Cir. 1980) (president of company acquiesced in counsel's written misrepresentations to FCC with respect to availability of loan money);68/ Continental Broadcasting, Inc. v. FCC, 439 F.2d 580, 582, 584 (D.C. Cir. 1971), cert. denied, 403 U.S. 905 (1971) (principals found to have exercised inadequate control over station after station manager filed 139 spurious contracts; principals aware for months of inaccurate program logs and failure to file contracts with FCC).

68/ UCS draws a parallel between the WADECO case and licensee's "uncritical acceptance" of John Wilson's cheating investigation. UCS Brief at 13 n.3, citing Cheating PID at ¶ 2266. Any implication that Mr. Wilson was guilty of misrepresenting information is improper, for the Board specifically found that he did not misrepresent statements by Messrs. G and H, Cheating PID at ¶ 2253, nor did he misrepresent any other information. See Cheating PID at ¶¶ 2247-66. See discussion at § IV.F.1, infra.

In the TMI case, upper management personnel did not transmit false information to the NRC about cheating within their operations staff, nor did they acquiesce in its transmittal. On the contrary, they truthfully reported potentially relevant information on cheating as soon as they discovered it. See, e.g., Wilson, ff. Tr. 24, 478, at 16-17 (Arnold immediately reported rumors of cheating on April, 1981 NRC exam to NRC Investigator Baci; Arnold immediately reported to Stello rumor that Mr. U wrote on his hand and took crib sheets into April, 1981 NRC exam); Tr. 23,664 (Arnold); Cheating PID at ¶ 2060. As for misrepresentations or cheating found during the reopened proceeding, TMI upper management learned of it as a result of the reopened proceeding. Thus, there can be no valid claim that they acquiesced in these actions.

Having looked closely at all of these cases, Licensee is struck by the contrast between the narrow, overly simplistic views of the Commonwealth, UCS and TMIA, and the realistic, tough, yet compassionate positions of the courts and regulatory bodies. The Licensing Board in this case has followed the approach of these judicial precedents, and its views of the evidence should therefore be closely considered. See Catawba, supra, ALAB-355, 4 N.R.C. at 404.

2. Individual operators. In view of the case law discussed above, Licensee now reviews the third general claim made by the Commonwealth, UCS and TMIA; viz., the Board ignored, excused, or gave insufficient weight to lack of integrity on the part of

several individuals and, therefore, imposed inadequate sanctions.69/ To the contrary, as will be shown, the Board carefully reviewed all relevant record evidence, gave special weight to Judge Milhollin's credibility determinations, see p. 62, supra, considered the severity and the safety implications of cheating incidents, and noted any mitigating circumstances before recommending disciplinary action. The Board's recommendations are sometimes based on close judgment calls, but they are carefully crafted, well supported, reasonable and fair.

a. Messrs. G and H. TMIA, the Commonwealth and, to a much lesser extent, UCS all complain about the Board's decision to suspend Messrs. G70/ and H for two weeks without pay71/ as a

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69/ UCS's general conclusion -- that the alleged lack of integrity demonstrated by certain individuals reflects on management competence -- is discussed at pp. 74-75, supra.

70/ Licensee has reported that Mr. G tendered his resignation from Licensee's employ effective October 15, 1982. See letter dated October 7, 1982 from Ernest L. Blake, Jr., counsel for Licensee, to the Atomic Safety and Licensing Appeal Board Administrative Judges Edles, Buck and Kohl. This letter was also sent to all individuals on the service list. In view of Mr. G's resignation, Licensee will discuss the issue of sanctions only with respect to Mr. H., while continuing to discuss findings with respect to both Messrs. G and H.

71/ The Commonwealth strongly objects to the Board's offer to "void" its recommendation to initiate proceedings under 10 C.F.R. Part 2, subpart B, and § 55.40 against Messrs. G and H (now only Mr. H) if Licensee and Messrs. G and H accept the two week suspension without pay. Commonwealth Brief at 31 n.17; see Cheating PID at ¶ 2419(1). The Commonwealth makes the incredible claim that this Board offer constituted a "judicial plea bargain," the acceptance of which would avoid appellate review of the Licensing Board decision. Licensee points out that in an area without precise judicial precedent, the Board chose this novel approach of recommending a two-week suspension in lieu of an action against Messrs. G's and H's licenses because it was

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sanction for their cheating on Licensee-administered quizzes.72/ Cheating PID at ¶ 2120. Essentially, TMIA and the Commonwealth argue that the mitigating factors considered by the Board in fashioning a remedy are not valid, and that the appropriate remedy would be to remove Mr. H from duties at TMI-1 immediately, pending a hearing for suspension or revocation of his operators' license. See Commonwealth Brief at 6-8, 27-31; TMIA Brief at 50, 54-56. USC argues that the Board has "excused" the conduct of Messrs. G and H by distinguishing between integrity and competence. UCS Brief at 5, 7.

Before analyzing each mitigating factor, Licensee takes issue generally with the parties' frequent claims that the Board somehow "excused" the conduct of Messrs. G and H. See, e.g., Commonwealth Brief at 29 (cheating on weekly quiz does not "excuse" dishonest conduct); UCS Brief at 5 (Board "excused"

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within the Board's jurisdiction and was "fair, final, simple and responsive to the G and H cheating episodes." Cheating PID at ¶ 2120. To suggest that this remedy amounts to a plea bargain is totally unjustified. Moreover, the Appeal Board is free to formulate a different remedy if it chooses, so practically speaking, Licensee has not avoided appellate scrutiny.

72/ UCS unfairly complains about Licensee's continued position that Messrs. G and H did not cheat. UCS Brief at 14. In fact, Licensee has clearly stated that "[w]ith the Board's collegial determination based on the the evidence that in its opinion these individuals [Messr. G and H] did cheat, Licensee has . . . reassessed its position [that Messrs. G and H did not cheat] . . . . Licensee accepted the Board's decision and has filed no exceptions to that decision." Lic. Reply Comments on Imm. Eff.-Cheating at 39.

Messrs. G and H and others by distinguishing between ethics and competence); TMIA Brief at 55 (Board "excuses" Messrs. G and H because they have passed NRC exam). On the contrary, the Board specifically found that "G's and H's cheating in particular is intolerable and unrewarding," Cheating PID at ¶ 2117, and sanctioned the two operators. Nothing was excused.

The Commonwealth begins its discussion of Messrs. G and H by focusing on the Board's finding that, "We have then, a question of ethics, not of competence," Cheating PID at ¶ 2119. From this, the Commonwealth concludes that "[t]he Board violates its own principle that lack of ethics alone, notwithstanding competence, is sufficient grounds for denying an operator's license." Commonwealth Brief at 27. As Licensee has explained, see pp. 66-67, supra, the Board enunciated no such principle. Rather, the Board suggested that unethical conduct may be sufficient grounds for denying or suspending an operator's license. See Cheating PID at ¶¶ 2059, 2350-51.

The Commonwealth's criticism of the Board's first mitigating factor is based on a distortion of the Cheating PID. According to the Commonwealth, "the Board states that the Licensee was largely responsible for G's and H's cheating by 'permitting an undisciplined training and examination environment.'" Commonwealth Brief at 28, citing Cheating PID at ¶ 2118. In fact, the Board never found Licensee "largely responsible" for this cheating, but found that the training and testing environment created by Licensee created the opportunity for cheating to occur. See Cheating PID at ¶¶ 2324, 2328.

The Commonwealth heaps more exaggerations onto its first overstatement, claiming that the Board's rationale not only places "little or no independent accountability" on individuals, but that it creates a standard whereby "nuclear power plant operators do not have to be honest and responsible until explicitly so instructed in a written procedure." Commonwealth Brief at 28. The record speaks for itself. The Board specifically held Messrs. G and H accountable for their actions, finding that they "cheated on their own volition." Cheating PID at ¶ 2118. Nevertheless, the Board recognized that despite the unspoken expectation of honesty at all times, the existence of an undisciplined training environment at the time Messrs. G and H were found to have cheated, id., may have influenced their views and their conduct with respect to Licensee-administered quizzes. The Board did not view this as a reason to forgive and forget, as the Commonwealth implies, but properly viewed this as one of several mitigating factors to consider.

The second mitigating factor noted by the Board is that Messrs. G and H were found to have cheated on several Licensee-administered weekly quizzes but not on NRC exams or mock NRC exams. Cheating PID at ¶ 2118. TMIA takes the position that "cheating is cheating," and that the Board's distinction between quizzes and other exams is "wholly arbitrary."73/ TMIA Brief at

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73/ The Commonwealth believes that cheating on NRC exam "is clearly more significant" than cheating on weekly quizzes. Commonwealth Brief at 28-29.

54. TMIA here ignores the much-discussed fact that the importance of weekly quizzes was not impressed upon the operators, whereas the importance of NRC requalification exams, and the concomitant necessity to do one's own work without cooperation, was clear. See, e.g., Tr. 25,695-98, 25,719 (Mr. GG); 25,967-74 (Mr. OO); Tr. 26,231-34 (Mr. O); Tr. 26,305-07, 26,317-18 (Mr. V). Thus, the Board's distinction is based on substantial, unrefuted record evidence, and is inherently reasonable.

The Commonwealth claims the Board "overlooks" the fact that much of Messrs. G's and H's cheating occurred on Category-T exams which were mandated as a restart requirement, Management PID at ¶¶ 229-230; CLI-79-8, 10 N.R.C. 141, 144 (1979) (Item 1(e)). See Commonwealth Brief at 29. TMIA adds that these exams were the only means of testing an operator's knowledge of ongoing changes in the plant. TMIA Brief at 54. The Commonwealth misses the mark here, for the Board clearly recognized the status of Category T exams, see Cheating PID at ¶ 2096. However, this status was irrelevant here because it was not impressed upon the operators, i.e. the Category T makeup exams were given, and therefore treated, like any other weekly quiz, see, e.g., Tr. 25,699-700 (Mr. GG: operators generally did not take Category T make-up seriously). TMIA is also wrong because the NRC licensing exams included site-specific questions. Tr. 24,158-59 (Ross).

The third mitigating factor considered by the Board is that the proportion of answers produced by cheating is "relatively

small." Cheating PID at ¶ 2119. Both the Commonwealth and TMIA agree, without citation to any relevant record evidence, that the cheating by Messrs. G and H was "extensive" and "conspiratorial, over a series of quizzes." Commonwealth Brief at 29; TMIA Brief at 55. These parties ignore the fact that the Board found cooperation on four answers; Judge Milhollin on five. Cheating PID at ¶ 2097. Four or five answers out of literally hundreds on two NRC exams, several mock NRC exams, and weekly quizzes given over a period of almost three years, from 1979 to late 1981, justifiably may be deemed "relatively small." See Lic. Exs. 63, 80.

TMIA follows up on this point by claiming that the Board erred in refusing to find generally that Messrs. G and H poorly understood the course material. TMIA Brief at 55. The record does not support this conclusion, however, for of eleven sets of answers that were reviewed closely during the reopened proceeding, Mr. G was confused as to only one answer; see Tr. 24,791-92 (Brown: Mr. G. confused about force balance, Rosemont transmitter and bourdon tube);74/ and Mr. H was confused as to only two answers; see Tr. 25,888, 25,899-901, 25,942-43 (Mr. H's confusion about force balance and Rosemont transmitter); Tr.

74/ Judge Milhollin found that Mr. G was confused about the generation of hydrogen gas following a LOCA, SMR at ¶¶ 45-46, but Licensee notes that Mr. G understood and correctly explained the fact that aluminum and sodium hydroxide must react together to form hydrogen, but incorrectly thought it was unnecessary to list both components. Tr. 25,787-88 (Mr. G).

25,902-04 (Mr. H admits confusion as to generation of hydrogen gas following a LOCA).75/ Moreover, both operators passed the NRC exam under properly monitored conditions. Thus, Messrs. G and H can justifiably be deemed to have satisfactorily understood the course material.

The Commonwealth and TMIA next argue that the Board overlooked the significance of Messrs G's and H's denial of cheating and other allegedly untruthful testimony under oath, and that this conduct merited a more severe sanction. Commonwealth Brief at 29-30; TMIA Brief at 54, 56. Licensee points out, first, that the Board was fully cognizant of the "incredible" testimony of Messrs. G and H; see Cheating PID at ¶ 2114. Nevertheless, when the Board considered their performance on the stand together with all the other relevant evidentiary factors, they decided that a two-week suspension without pay was both fair and sufficiently harsh to teach these men a meaningful lesson. The Board understood that the effect of their sanction would be "felt and remembered" by Messrs. G and H, and would adversely impact their careers. Cheating PID at ¶ 2120.76/

75/ Judge Milhollin found that Mr. H was also confused about natural circulation, SMR at ¶ 242. But see Licensee's Comments on the Report of the Special Master (May 21, 1982) ("Lic. Comments on SMR") at ¶¶ 136-138.

76/ The Commonwealth questions the bases for the Board's willingness to approve prospective application of a procedure that will prevent certification of one who has cheated on a company-administered exam, while at the same time allowing Mr. H to maintain his licensed operator status after finding that he cheated. Commonwealth Brief at 26-27. Licensee believes that the difference in approach involves mitigating factors. Until

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In addition, Licensee emphasizes that it has taken steps to impress upon these operators the critical need for honesty and candor. Specifically, Mr. Hukill, Vice President of TMI-1, spoke to them after issuance of the Cheating PID about reliability and attitude, and they were told that over the next year, their behavior and activities will be closely monitored by their supervisors and management. In addition, Mr. Ross, Manager of Plant Operations, will meet with them periodically to discuss Licensee's assessment of their performance. See Lic. Reply Comments on Imm. Eff.-Cheating at 39-40. Licensee believes that the Board's sanction, plus the additional measures Licensee's management has already taken and will continue to take, represent a just remedy for Messrs. G and H.

The Commonwealth makes one final argument that the Commission should institute proceedings against Messrs. G and H (now only Mr. H) for license suspension or revocation under 10 C.F.R. § 55.40, and that their licenses should be suspended pending the outcome of the proceedings. To the extent that the Commonwealth's position can be read to suggest further that Mr. H's

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the O/W cheating incident, operators took quizzes in a loose testing environment. Since October 1981, however, quizzes have been administered strictly and all operators know that any cooperation will be considered cheating and will prevent their certification. Under these circumstances, prospective application of the new procedure will be fair, whereas application of the procedure for past conduct would be unfair. See Lic. Ex. 73.

license be suspended immediately, even before a determination by the Commission that a proceeding be initiated because "public health and safety is jeopardized," Licensee disagrees. See Commonwealth Brief at 30-31, citing 5 U.S.C. § 558(c); 42 U.S.C. § 2137 (sic) (should be § 2273). Even assuming the Appeal Board has proper jurisdiction to take such action, the Commonwealth does not indicate, and Licensee fails to discern, how in view of Mr. H's demonstrated competence, his conduct and denial of wrongdoing can be deemed one of these extraordinary situations which so greatly jeopardizes public health and safety as to justify deprivation of a license preceding a hearing. See Boddie v. Connecticut, 401 U.S. 371, 379 (1971); Cowell, supra, 612 F.2d at 507 (10th Cir. 1980) (emergency order revoking airman and airman medical certificates before hearing upheld because falsified records masked potentially serious medical danger and lack of proper qualifications); Hard, supra, 248 F.2d at 763 (7th Cir. 1957) (emergency order suspending for two months airline transport pilot rating upheld because, in part, pilot caused accident by persisting in extremely dangerous maneuvers). Licensee believes that there is no need for any further proceedings at all with respect to Mr. H. However, if a separate proceeding under 10 C.F.R. Part 2, Subpart B and 10 C.F.R. § 55.40 is deemed necessary, Licensee believes it is both appropriate and fair to allow Mr. H to work at TMI-1 before such a proceeding commences, particularly in view of Licensee's close surveillance of his performance. Of course, Licensee maintains

its commitment that if a proceeding is instituted by the Commission, Licensee would remove Mr. H from licensed duties pending the outcome of the proceeding. Lic. Comments on SMR at ¶ 26; Cheating PID at ¶ 2116.

b. Mr. Husted. The Commonwealth, TMIA and UCS have complained about the Board's decision to impose no direct sanction on Mr. Husted, but to recommend instead that the new requirements for Licensee's training program include special attention to Mr. Husted's qualifications and performance as an instructor. Cheating PID at ¶ 2168. TMIA argues that the Board erred in finding that Mr. Husted did not solicit an answer from Mr. P during the April, 1981 NRC SRO exam.77/ TMIA Brief at 39-41; Commonwealth Brief at 8. The Commonwealth also suggests that Mr. Husted's integrity was questioned by his potential knowledge of or involvement in Mr. U's use of his office to facilitate cheating. Commonwealth Brief at 8 (citing only to proposed findings).78/ Both TMIA and the Commonwealth suggest

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77/ The Commonwealth obliquely refers to Mr. Husted's alleged solicitation of an answer as calling his integrity into question. Commonwealth Brief at 8. However, the Commonwealth took no exception to the Board's factual determination that Mr. Husted did not solicit an answer from Mr. P during the NRC Exam. Commonwealth Brief at 9, n.9.

78/ The only bases to which the Commonwealth alludes for support of this proposition are that Mr. U arranged with Mr. Husted to use the latter's office in the office itself, Tr. 26,916 (Husted); and that neither Mr. U nor Mr. Husted remembered seeing each other in an exam room before the NRC exam, during which time Mr. U could have told other operators where he would be located; Tr. 26,879-80, 26,887 (Mr. U); Tr. 26,919 (Husted). See Commonwealth PF at ¶¶ 33-34. Licensee can discern absolutely no indication from this evidence that Mr. Husted knew of or was

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that Mr. Husted should be removed immediately from duties at TMI-1 pending a hearing for suspension or removal of his license. Commonwealth Brief at 6-8, 31-33; TMIA Brief at 53. UCS argues that the Board should not have "excused" Mr. Husted by separating his ethics from his competence. UCS Brief at 5, 7.

With respect to TMIA's claim that Mr. Husted solicited an answer from Mr. P (the only other operator in the same room with Mr. Husted during the April, 1981 NRC exam), TMIA incorrectly claims that the Board refused to analyze either Mr. P's or Mr. Husted's credibility with respect to this incident. TMIA Brief at 40. In fact, the Board carefully reviewed Judge Milhollin's observations of these individuals' demeanor, Cheating PID at ¶¶ 2036-38, 2150, and analyzed the evidence related to other areas of alleged misconduct that potentially affected their credibility, see id. at ¶ 2158; Lic. Reply Comments on Imm. Eff.-Cheating at 11-12.

TMIA also mischaracterizes the Board's decision with respect to the weight given the testimony of I&E Investigator Baci. TMIA Brief at 40-41. Again, as Licensee explained in its Reply to Comments of Other Parties on Immediate Effectiveness at 12-13,

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involved in Mr. U's alleged facilitation of cheating, nor is Licensee aware of any other such evidence. Thus, Mr. Husted's integrity has not been tarnished by this matter, regardless of Mr. U's activities in the office. Moreover, the Licensing Board found that Mr. U was not involved in cheating during the NRC exam, a finding which the Commonwealth does not challenge.

the Board found no independent corroboration of Mr. Ward's testimony, Cheating PID at ¶ 2154; found that Mr. Ward did not lie in front of a silent witness Baci but testified truthfully, id. at ¶ 2152; and justifiably gave no weight to Mr. Baci's silence absent an agreement among the parties on the matter, id. at ¶ 2153.

TMIA questions the basis for the Board's finding that Mr. Husted may merely have been asking Mr. P for clarification. TMIA Brief at 40, citing Cheating PID at ¶ 2156. However, TMIA fails to support its position. First, TMIA describes Mr. Ward's testimony as including "a definite inference that the question [allegedly asked of Mr. P] came off the exam." TMIA Brief at 40. In fact, Mr. Ward stated: "I drew the inference that it [the question] was definitely off the exam . . . It may not have been a direct answer to an examination question." Tr. 25,463-64 (Ward) (emphasis added). Second, although TMIA correctly quotes Mr. Husted as testifying that he easily could have left the exam room to ask the proctor to clarify a question, Tr. 26,944 (Husted), this testimony does not indicate that he did indeed leave the room every time he needed clarification, nor does it contradict Mr. Ward's testimony as to the nature of the question allegedly asked: ". . . well, what in hell does this mean or words to that effect." Tr. 25,463 (Ward). The Board quite reasonably interpreted this "question" as one for clarification, or perhaps just "rhetorical grumbling." Cheating PID at ¶ 2156.

In sum, the Board carefully reviewed all of the evidence with respect to the Ward/Baci interview of Mr. P, considered other areas of testimony with respect to the characters of Messrs. P and Husted, see Cheating PID at ¶ 2158, reviewed Judge Milhollin's credibility findings, and arrived at a well-supported decision that the slate should be wiped clean for both individuals with respect to this matter.

On the question of sanctions, the Commonwealth focuses on four Board findings as a basis for arguing that Mr. Husted should not be allowed to operate TMI-1 pending a license revocation or suspension hearing. Commonwealth Brief at 32-33; see Cheating PID at ¶¶ 2165, 2167. The Commonwealth also argues that the independent audit of Licensee's training program ordered by the Board, Cheating PID at ¶ 2421(1), should include a recommendation as to whether Mr. Husted should be retained as an instructor. Commonwealth Brief at 33. UCS focuses on virtually the same Board findings as support for its position that TMI-1 upper management lacks the competence and character to operate the plant safely. UCS Brief at 15, 18. TMIA claims that Mr. Husted's "history of soliciting an answer on an NRC exam,"79/ his failure to cooperate with the NRC inspectors, and his giving of "false testimony"80/ at the reopened proceeding require his

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79/ The Board justifiably found, as discussed above, that Mr. Husted did not solicit an answer from Mr. P on the April, 1981 NRC exam. See p. 86, supra.

80/ TMIA here unfairly stretches the Board's finding that Mr. Husted gave an "incredibly inconsistent account" of why he first withheld some information. Cheating PID at ¶ 2165.

immediate removal from his training and licensed operator duties. TMIA Brief at 53.

All of these parties ignore several additional Board findings which put into perspective Mr. Husted's actions and statements. First, although Mr. Husted originally refused to answer fully some of the NRC investigators' questions with respect to rumors of cheating and examiners bringing reference materials into NRC exams, the Board gave him credit for "candidly admit[ting]" that his refusal was based on his dissatisfaction with the way the investigation was run. Cheating PID at ¶ 2165. The questions, testified Husted, "were so broad and vague that I could not give a specific answer." Tr. 26,929 (Husted). Moreover, when Mr. Husted was interviewed a second time by the OIE investigators, he freely recounted all he knew about an overheard portion of a conversation including the words "passing papers." Staff Ex. 27 at 16; Tr. 26,929-31 (Husted).

The Board considered Mr. Husted's problems here to be strictly attitudinal, which Licensee has conceded. While this type of attitude should not be and has not been condoned or encouraged, neither should it be equated with a lack of integrity.

The Commonwealth faults the Board for finding that Mr. Husted's attitude problems are unrelated to his status as a licensed operator. Commonwealth Brief at 32, citing Cheating PID at ¶ 2168. Although Licensee cannot establish with certainty the Board's views here, Licensee believes that the Board is

maintaining the wholly appropriate distinction between differing degrees of poor attitude, some of which surely rise to the level of severity that would raise questions about an operator's reliability, judgment, or integrity, while others of which would not rise to this level. In this instance, Mr. Husted made a mistake in judgment in, essentially, second-guessing the NRC investigator's need for information about rumors or other indications, however unsubstantiated, of cheating. See Staff Ex. 26 at 39 (rumors were "unconfirmed hearsay"). Mr. Husted again displayed this flippant attitude on the witness stand, e.g., describing himself as "Stupid, I guess," in not being forthcoming with the Staff investigators when he was initialy interviewed. See Tr. 26,928-29 (Husted). While these incidents clearly do reflect a problem with Mr. Husted's attitude, they do not rise to the level of significance which caused the Board to challenge Mr. Husted's ability to serve as a licensed operator. It is unreasonable to assume, for example, that because Mr. Husted was reluctant to talk about rumors, he would have been similarly reluctant to talk to NRC investigators about other safety issues which might have been the subject of investigation at TMI. Furthermore, at this juncture, it is reasonable to expect Mr. Husted never to second-guess Staff investigators, regardless of his opinion as to the significance or appropriateness of the inquiry. Clearly, however, the Board endorsed the consideration of operator attitude in the operator certification process. See Cheating PID at ¶ 2350. The Board simply did not believe Mr.

Husted's conduct, which did reflect a bad attitude, rose to the level of significance to warrant suspension or revocation of his license.

The Commonwealth also claims that Mr. Husted's attitude is clearly related to his ability to teach. Commonwealth Brief at 33. The Board admitted its fears that his attitude could be revealed in his teaching but with absolutely no evidence to indicate his incompetence or inappropriate performance as a teacher, and in view of a widely held belief among educators81/ that a teacher's attitude is irrelevant to his or her competence, Cheating PID at ¶ 2168, the Board wisely refrained from linking Mr. Husted's attitude to his teaching qualifications.

Nevertheless, to ensure that Mr. Husted's instruction is satisfactory, the Board recommended that Mr. Husted's teaching be closely monitored, Cheating PID at ¶ 2168. Licensee has not resisted this recommendation. Additionally, Licensee did not await the Licensing Board's recommendation. On its own initiative, Licensee has acted to insure Mr. Husted's attitude is not an impediment to his work. Thus, Mr. Husted has been required to discuss his conduct and his attitude with Mr. Hukill, Dr. Long, Vice President Nuclear Assurance, Dr. Knief, Manager of TMI training, and Mr. Newton, head of operator training, and he has been warned that the attitude he displayed during the first I&E

81/ Board members Drs. Jordan and Little have had extensive experience in advanced education.

interview and during the hearing will not be tolerated at TMI-1. His teaching also has been subject to review and he will continue to be evaluated closely by Licensee. See Lic. Reply Comments on Imm. Eff.-Cheating at 41-42.

In view of the Board's decision and Licensee's actions, Licensee believes that instituting an additional proceeding under Part 55 is both unnecessary and unfair. Nevertheless, Licensee repeats its previously volunteered commitment, noted in its Reply to Comments of Other Parties on Immediate Effectiveness at 42, that if the Commission institutes a proceeding against Mr. Husted's license, Licensee will relieve Mr. Husted of all licensed duties pending the outcome of the hearing.

c. Mr. Shipman. UCS argues that the Board "excused" Mr. Shipman by finding his "lying" or "withholding information" "natural"; and complains about Mr. Shipman's "incredible stories" and "refus[al]" to name the person who asked him a question during an NRC exam. UCS Brief at 6, 7, 14-15. UCS nevertheless suggests no sanction against Mr. Shipman. TMIA takes its consistently extreme position, namely that Mr. Shipman's license be removed immediately. TMIA Brief at 46, 50, 53-54. Licensee disagrees.

First, contrary to UCS's position, the Board did not find Mr. Shipman's "lying" or "withholding information . . . natural." The Board in fact balanced a series of positive and negative factors as to whether his inability to remember his questioner was believable, and found, as a factor suggesting incredibility,

that his professed inability to remember was "consistent with a natural reluctance to inform . . . a natural reaction." Cheating PID at ¶ 2142. Nevertheless, the Board ultimately found, contrary to statements by both UCS and the Commonwealth, that Mr. Shipman's inability to remember (not his "refusal to name" his questioner as UCS loosely suggests), was "not totally incredible." Id. (emphasis added). The Board explained further that "his [Judge Milhollin's] conclusion that Mr. Shipman is not truthful in his denial is probably the best inference to be drawn." Id. at ¶ 2144; see id. at ¶ 2145 (evidence is not conclusive beyond doubt that Mr. Shipman does remember his questioner).

TMIA's claim that the Board relied on public interest to protect Mr. Shipman from sanction for his untruthful testimony is patently false. See TMIA Brief at 46, 53-54, citing Cheating PID at ¶ 2144. In fact, no evidence was adduced showing his report of the incident to be false, nor was evidence adduced showing that Mr. Shipman can remember who questioned him "except for the implication that he should remember". Cheating PID at ¶ 2142. Therefore, Mr. Shipman was not found to have testified falsely and the Board's recognition of a public interest in encouraging Mr. Shipman's voluntary report surely was not used to justify any untruthfulness. The public interest was just one of several mitigating factors considered by the Board, see Cheating PID at ¶¶ 2142, 2144, 2415, before deciding whether to recommend a sanction.

TMIA's next point is that Mr. Shipman's voluntary report came months after the incident had occurred and after the cheating investigation had begun, implying that his willingness to come forward should not be considered a mitigating factor. What TMIA ignores is that at the time of the encounter or shortly thereafter, Mr. Shipman realized that his conduct had been improper, but did not think the incident was significant enough to constitute cheating. Thus, he did not immediately report the incident. Staff Ex. 28 at 5 and Enclosure 3 at 1; Tr. 26,383 (Shipman). He was disabused of such a notion by Mr. Hukill; see Tr. 23,959-60, 24,091 (Hukill); Tr. 26,358 (Shipman), and when he (Mr. Shipman) testified, the Board perceived a "sense of seriousness and regret" in his testimony. Cheating PID at ¶ 2166.

Finally, TMIA wrongly claims that the Board ignored the fact that Mr. Shipman continues to shield a cheater. On the contrary, the Board specifically noted the Commonwealth's point that there is still an uncaught cheater "more culpable than Mr. Shipman," Cheating PID at ¶ 2146, and that the cheater felt free to approach a mid-level member of management for assistance. See id. at ¶ 2047. Consequently, the Board was "especially concerned as to whether there was evidence that Licensee's management condoned cheating." Id. at ¶ 2047.82/

82/ The Board has permitted the inquiry with respect to the uncaught cheater to end, believing that subsequent investigations or inquiries would not improve the record already made. See Cheating PID at ¶ 2415.

In sum, Mr. Shipman has had an exemplary employment history with Licensee, see Arnold, ff. Tr. 23,590, at 10; Hukill, ff. Tr. 23,913, at 14-15, freely came forward with inculpatory information about a spontaneous and isolated cheating incident, testified in a serious manner, and may have, but did not necessarily refuse to name his questioner. Under these circumstances, Licensee believes that the Board's and Licensee's own sanctions -- a letter of reprimand in his file and the Board's stated suspicions about his candor -- are appropriate. See Cheating PID at ¶ 2145. Judge Milhollin's conclusion that Licensee should not be permitted to use Mr. Shipman to operate TMI-1 until he names his questioner or gives a credible reason why he cannot do so, id. at ¶ 2145, citing SMR at ¶ 314, is both unfair and unworkable, whereas TMIA's recommendation to remove Mr. Shipman is unjustifiably severe.

d. Mr. U. UCS, the Aamodts and the TMIA all complain about Mr. U's conduct as a licensed operator and about the quality of his testimony in this reopened proceeding. UCS seeks no sanction against him, however, whereas the Aamodts and TMIA, without recommending any specific sanction, suggest that he should be found guilty of having been stationed, or of having stationed himself outside of the NRC exam rooms to aid examinees during the exam. UCS Brief at 7, 15; Aamodt Brief at ¶ 62; TMIA Brief at 43-47. Because the evidence against Mr. U consisted of a variety of rumors and unresolved questions, Judge Milhollin and the Board reasonably concluded that the allegations were not

substantiated, and, accordingly recommended no sanction against him.

UCS claims that Mr. U's integrity has been impugned because he lied on the stand in denying that he had telephoned Mr. KK and had asked Mr. KK to answer a question so that Mr. U could help Mr. O take an NRC exam in progress. UCS Brief at 15, 17-18. Although Mr. U did not admit to this act, he did concede that he may have called Mr. KK for the answer to a test question, Cheating PID at ¶ 2180. Licensee points out there has been no finding that he lied or even gave incredible testimony. Cheating PID at ¶¶ 2179-82. Moreover, no cheating or unethical behavior occurred here because the question asked of Mr. KK was not even on the NRC exam.83/ Thus, the testimony and the incident are insignificant and should not form the basis for a conclusion that Mr. U's integrity has been impugned.

TMIA appears to accept the conclusion that Mr. U was not stationed outside the exam rooms, but argues instead that he stationed himself in Mr. Husted's office to aid examinees, and that "management" (no particular names are mentioned) might have learned of Mr. U's acts at some point during the NRC exam. TMIA Brief at 43-47; compare id. with TMIA PF at ¶ 134 ("it would be

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83/ The Aamodts' claim that Mr. U actually did ask Mr. KK a question to aid Mr. O on the NRC exam is improperly supported by a mere citation to their Comments on the Report of the Special Master at 18-20, see n. 3, supra, and is totally unsupported by the record. See SMR at ¶¶ 123-29.

speculative to assume that [Licensee management] therefore knew of Mr. U's activities [in Mr. Husted's office]").84/

TMIA first supports its position by questioning the credibility of Mr. U's testimony that he studied immediately after two grueling NRC exams for an oral exam four months away. TMIA Brief at 43. TMIA, however, ignores the fact that the evidence was unrefuted that Mr. U was assigned to study during the days in question and had no choice but to do so. Cheating PID at ¶ 2175.

TMIA next argues that Mr. U's reasons for being in Mr. Husted's office during the April, 1981 NRC "B" exams were incredible because the location was "the least conducive to study," and Mr. U only used Mr. Husted's office that one time. TMIA Brief at 44. Licensee notes, to the contrary, that the abundance of reference material and easy access to beverage machines made Mr. Husted's office a very desirable choice. Tr. 26,918 (Husted).

TMIA completely misconstrues Mr. OO's testimony with respect to Mr. U. TMIA Brief at 44. Whether or not Mr. OO was an "extremely cautious witness," all that he could recall was that he saw Mr. U at the coffee pot during the April, 1981 NRC "B" exam, and based on Mr. U's, "Hi, how are you doing?", Tr. 25,988

84/ TMIA made this same point with many of the same supporting arguments in its Comments on Special Master's Report and the Atomic Safety and Licensing Board's Tentative Final Draft at 5-6, and Licensee refuted them in its Reply to Comments of Other Parties on the Special Master's Report and the Atomic Safety and Licensing Board's Tentative Final Draft at 14-16.

(Mr. OO), Mr. OO "jumped to the conclusion" that Mr. U was implying an offer of assistance. Tr. 25,998 (Mr. OO). Yet, from this testimony, TMIA argues that Mr. U offered assistance to Mr. OO, and that the Board ignored evidence of record in finding it impossible to reach a reliable conclusion on this issue based on "OO's subjective interpretation of U's unstated purpose." Cheating PID at ¶ 2177. The Board's finding is justified in view of Mr. OO's unambiguous testimony.

TMIA's last argument is that Mr. U stationed himself in Mr. Husted's office to help examinees and that management learned of this during the exams. In support of its position, which the Board specifically rejected, Cheating PID at ¶ 2184, TMIA finds it "possible" that Mr. OO heard the rumor about someone being stationed outside the exam rooms when Mr. U was talking to some examinees in the nonsmokers' exam room twenty minutes before the commencement of the NRC RO "B" exam. TMIA Brief at 45; see Tr. 26,879-80 (Mr. U). However, TMIA cites no evidence, nor can Licensee find any evidence, indicating that Mr. OO was indeed in the nonsmokers' exam room or participated in the discussion with Mr. U just prior to the exam, or that Mr. OO learned about the rumor at that time. On the contrary, the record shows that Mr. U only remembered talking to Messrs. O, A, Z and possibly S prior to the RO "B" exam. TMIA Ex. 88, Tr. 26,879-80 (Mr. U).

TMIA also finds it "likely" that a management person learned of Mr. U's activities during a search for materials related to answer key changes. TMIA Brief at 45-46. In support, TMIA cites

Mr. Ross' testimony that Licensee reviewers had to obtain materials with respect to answer key changes "someplace within the training area." Tr. 24,161 (Ross). However, TMIA cites no record evidence, nor is Licensee aware of any such evidence, to show that "Mr. Husted's office contained such documentation," TMIA Brief at 46, or that any Licensee reviewer saw or spoke to Mr. U during these exams or spoke to anyone about Mr. U's whereabouts or conduct during the exams.

Finally, TMIA strongly criticizes the Board for its position that because Mr. U's own testimony constituted the principal hard evidence against him, the Board was "hesitant about selecting inculpatory testimony and rejecting exculpatory testimony." Cheating PID at ¶ 2184. TMIA first misquotes the Board, claiming it held that it "should not select" inculpatory over exculpatory testimony, TMIA Brief at 46. TMIA then argues that "this new principle, which rests on no discernible grounds other than the Board's twisted logic, is firm evidence of the Board's eager readiness to sanction cover-ups and lies by this company . . . . It [the Board] will not require the witness to tell the truth, if his testimony is incriminating. It will only require the truth if the testimony will not be damaging to the testifier." TMIA Brief at 46-47. Apparently, TMIA believes that Mr. U's admissions are untruthful, and that the Board did not even choose to consider such untruthful testimony because it was inculpatory. TMIA has badly misconstrued the Board's statements.

The Board found no "reliable external evidence" to suggest that Mr. U's vague admissions, or "nondenials," were untruthful or were precautions against a later perjury charge. Cheating PID at ¶ 2184. Thus, TMIA's claim that the Board sanctioned Mr. U's cover-up or that the Board did not require truthful testimony, is totally baseless. Moreover, the Board never refused to consider the inculpatory testimony, but merely noted that it would not favor inculpatory statements over exculpatory ones. This "principle" is both reasonable and fair. Finally, the Board clearly weighed all of these statements and considered the other circumstantial evidence against Mr. U before deciding that the totality did not support a finding of guilt. Cheating PID at ¶ 2180.

In sum, TMIA has presented no convincing evidence to support a reversal of the Board's and Judge Milhollin's finding with respect to Mr. U.

e. Messrs. GG and W. TMIA challenges the Board's findings that Mr. W copied from Mr. GG and that Mr. GG only permitted Mr. W to copy from him, arguing that they are unsupported and prejudicial to TMIA. TMIA Brief at 42. TMIA also argues that the Board's decision not to sanction Mr. GG should be overturned. TMIA Brief at 54, 56. UCS adds that the Board "excused" Mr. GG's "cheating" by drawing distinctions between ethics and competence. UCS Brief at 5, 15. This matter required a judgment call, and the Board's view of the evidence is more reasonable and hence more persuasive than that of the intervenors.

As support for its position, TMIA argues that the first word of Mr. GG's response was deleted and that the rest of his response was the same as Mr. W's unmarked answer, TMIA Brief at 42; compare Lic. Ex. 66L (Mr. W) with Lic. Ex. 66M (Mr. GG). TMIA draws no specific inference from this fact, but apparently believes it indicates that Mr. GG copied from Mr. W. Licensee suggests that an equally strong inference is that Mr. GG, upon writing the deleted word "poor," decided to change his approach, so he deleted the word and wrote his response, after which Mr. W copied the response without errors or deletions.

TMIA next states that Mr. W denied copying from GG and that Mr. W had no motive to lie. TMIA Brief at 42-43. Whether or not Mr. W was motivated to lie, his testimony as to whether he copied from Mr. GG was not without contradiction. When first asked, Mr. W testified that he "may have" discussed his answer with Mr. GG. Tr. 26,144 (Mr. W). He then testified that he did not copy from Mr. GG. Tr. 26,145 (Mr. W). Later, he stated that he might have copied from Mr. GG but was unsure because he could not recall the particular quiz. Tr. 26,153 (Mr. W).

TMIA agrees with Judge Milhollin that although Mr. GG denied copying from Mr. W, Tr. 25,695 (Mr. GG), Mr. GG's credibility was undermined. See SMR at ¶ 93. The basis for Judge Milhollin's finding is that in view of the striking parallelisms here, Mr. GG's guess that perhaps Mr. W had looked over his shoulder or had heard him discussing the exam in the hallway was incredible. See Tr. 25,698 (Mr. GG). The Board did not fully share Judge

Milhollin's view, Cheating PID at ¶ 2136. Mr. GG's credibility cannot reasonably be questioned merely because he guessed as to possible reasons for the parallelisms.

TMIA suggests that the Board's admittedly weak inference that Mr. W copied from Mr. GG and that Mr. GG permitted him to copy or at least knew of his copying is "totally without support." TMIA Brief at 43; see Cheating PID at ¶ 2134. On the contrary, Mr. W is a known cheater, see Cheating PID at ¶ 2090; Staff Ex. 26 at 48-49, and he equivocated as to whether he copied from Mr. GG during this quiz. Thus, the Board's inference clearly is supported by the record.

TMIA continues by questioning the validity of the Board's view that cheating on a company-administered quiz rather than on an NRC exam is a mitigating factor with respect to sanctions. TMIA Brief at 54, citing Cheating PID at ¶ 2136. As Licensee has explained, see pp. 79-80, supra, the Board is fully justified in drawing this distinction between exams and quizzes.

Finally, TMIA claims that because Mr. GG cheated and untruthfully denied it, the Board erred in refusing to find him "ethically disqualified for lack of candor," Cheating PID at ¶ 2136, and erred in refusing to sanction him. TMIA Brief at 56. TMIA is unjustifiably harsh. The Board here noted that Mr. GG offered at least a partial admission that Mr. W "might" have copied. Tr. 25,695 (Mr. GG). This statement, although arguably not perfectly candid, did not constitute such a serious lack of candor as to justify a finding of ethical disqualification.

Cheating PID at ¶ 2136. Moreover, this incident was isolated, and in view of other compelling mitigating factors, id., the Board reasonably and fairly judged that no sanction was warranted.

f. Mr. MM. TMIA complains that the Board erred and violated due process in relying partially on extra-record evidence contained in Mr. MM's Comments on Report of the Special Master to exonerate Mr. MM. TMIA Brief at 41-42. UCS merely restates the Board's finding, Cheating PID at ¶ 2137, regarding Mr. MM's unconvincing explanation of why he didn't cheat. UCS Brief at 14.

The most obvious flaw in TMIA's position is that the Board did not exonerate Mr. MM. On the contrary, the Board specifically noted that "this is not the total exoneration to which Mr. MM might have been entitled after a full hearing with his participation." Cheating PID at ¶ 2132; see id. at ¶ 2137.

TMIA next criticizes the Board's recognition of the standing of certain individuals, including Mr. MM, to comment on the Report; see Memorandum and Order Regarding Licensee's Motion to Reopen the Record, dated May 5, 1982, at 4, and the Board's improper reliance on Mr. MM's Comments as a basis for its finding. TMIA argues that the Board's request for and reliance on such evidence illustrate its "consistent" assumptions in favor of Licensee. These assumptions are deemed to have prejudiced TMIA's case by violating its due process and its right to participate effectively on the hearing. TMIA Brief at 41-42. TMIA is wrong for several reasons.

First, there is support for the Board's recognition of Mr. MM's right to comment on the Report in recent NRC case law.85/ Second, the Board's admitted reliance on extra-record evidence was quite limited. See Cheating PID at ¶ 2132 n.232. MM's statement that as a Shift Technical Advisor ("STA"), he was not required to be licensed and thus not required to take or to pass the company-administered quiz in question, see Cheating PID at ¶ 2130, is supported on the record. Lic. PF-Cheating, App. C, at C-2 (MM is STA); see Lic. PF-Management at ¶¶ 165-67; Lic. Ex. 66K. Clearly, an inference can be drawn here that Mr. MM had no motive to cheat. Thus, the only extra-record evidence on which the Board relied in judging Mr. MM's actions was Mr. MM's clarification and explanation of his quiz answers, and his suggestion as to the source and manner of teaching of the training information on which the quiz question was based. Cheating PID at ¶¶ 2130-31.

Third, although extra-record evidence ordinarily should not be relied on as a basis for decision in an adjudicatory

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85/ In Consumers Power Co. (Palisades Nuclear Power Facility), ALAB-670, 15 N.R.C. 493 (1982), a licensed operators' union was allowed to challenge an order by the Director of I&E. Id. at 494-5. The Appeal Board permitted discretionary intervention under 10 C.F.R. §§ 2.714(a) and (d), finding, among other things, that the union's interest in the order, the order's effect on that interest and the union's ability to help develop a sound record justified intervention. Id. at 501-04. In the present case, the Report had an immediate and substantial effect on Mr. MM in that Judge Milhollin found that he had cheated, see SMR at ¶¶ 82-93. Therefore, Mr. MM had a tremendous interest in the Report and was uniquely suited to clarify record evidence with respect to his own activities and motivations.

proceeding such as this, see, e.g., Morgan v. United States, 298 U.S. 468, 480 (1936); Public Service Co. of Indiana, Inc. (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 N.R.C. 179, 191 (1978), reliance on such evidence does not constitute fatal error and thereby invalidate a decision unless a complaining party shows "substantial prejudice." See United States v. Pierce Auto Freight Lines, 327 U.S. 515, 528-29 (1946); Seacoast Anti-Pollution League v. Costle, 572 F.2d 872, 881 (1st Cir. 1978), cert. denied 439 U.S. 824 (1978). A factfinder's reliance on extra-record evidence for important facts makes out such prejudice. Seacoast, supra, at 881 n.19.

TMIA claims that it was substantially prejudiced here because despite clear record evidence to the contrary, the Board relied on extra-record evidence to find that Mr. MM did not cheat. This finding then allegedly influenced the Board's decision that the overall integrity of the TMI-1 operations staff is adequate, thereby justifying restart. TMIA Brief at 42. TMIA greatly exaggerates.

The extra-record evidence relied on was relatively unimportant, and contrary to TMIA's bold assertion, there was additional clear record evidence supporting the Board's finding; viz., Mr. MM was an STA who didn't have to take or to pass the quiz, Lic. Ex. 66K; Mr. MM was not motivated to cheat; Mr. MM's second answer clearly was not the result of cheating, Cheating PID at ¶ 2128; and the incident occurred only once on a weekly quiz. Moreover, Mr. MM's role in this reopened proceeding was

relatively minor, and any decision with respect to his conduct was unlikely to affect the Board's overall decision as to the integrity of the operations staff or as to restart. Finally, and perhaps most importantly, TMIA never claimed before the Special Master that Mr. MM's conduct merited any sanction, so TMIA has not been prejudiced by the Board's findings. Cheating PID at ¶ 2132, n.232; see TMIA Comments on the Report of the Special Master at 2 (TMIA adopted Judge Milhollin's findings that Mr. MM probably cooperated but that no sanction was warranted).

For these reasons, TMIA's claim of substantial prejudice and due process violation must fail. Similarly, its claim of Board error on this matter must also be rejected.

g. Mr. WW. Only UCS discusses Mr. WW, claiming that he was inadvertently involved in "cheating" and that he did not come forward to report the incident to the NRC. UCS Brief at 15. UCS not only misstates the record here, but ignores important and uncontroverted evidence.

It was not clear to Mr. WW that the incident involved "cheating" at all because the question asked of him was not itself on the Kelly exam and could have been asked for general background knowledge. Cheating PID at ¶ 2188; see Kelly, ff. Tr. 12,409, at App. B (exam question); Tr. 26,444-45 (Mr. WW: question asked was useful generally). Therefore, Mr. WW did not report the incident during his first NRC interview because his suspicions of cheating were very vague and he was not asked any direct questions. Staff Ex. 28, Enclosure 1, at 2; Tr.

26,446-49, 26,457 (Mr. WW). Later, however, Mr. WW freely discussed the incident with Mr. Richard Wilson, Vice President of the Technical Functions Division of GPU Nuclear, and with the I&E investigators at a second interview after I&E's attention had been called to the incident by Licensee. Cheating PID at ¶ 2189; Arnold, ff. Tr. 23,590, at 10-11 (discussion with Mr. Wilson); Tr. 26,464 (Mr. WW: discussion with I&E investigators).

h. Messrs. A and I. TMIA is the only party to question very fleetingly the integrity of Messrs. A and I, noting that they sat directly behind Messrs. O and W when the latter two cheated on the April, 1981 NRC exams, yet the former claimed they saw no cheating. TMIA Brief at 50, citing SMR at ¶ 24. The record evidence reveals no reason to question the integrity of Messrs. A and I. The proctor for Messrs. O's and W's exam room saw no cheating, and no other examinee who testified saw cheating. See Tr. 25,966 (Mr. OO); Tr. 25,839-40 (Mr. HH); Staff Ex. 26, at 23 (Mr. R), 25 (Mr. Q), 31 (Mr. S). Messrs. A and I expressly denied having seen cheating because, during the exams in question, they gave their complete attention to their work. Tr. 26,043-44 (Mr. A); Tr. 26,536-37 (Mr. I). In sum, there is no basis for challenging the integrity of these two operators.

i. Conclusions. The Board's resolution of the allegations raised about individual operators was thoughtful, sound and fair. In contrast, the Commonwealth and the three intervenors often misstate or ignore record evidence. In addition, individual misconduct, however minor, is judged intolerable.

These parties also make some unjust claims with respect to the Board's overall findings in this area. For instance, the Aamodts claim that the Board "overlooked or excused" evidence considered by Judge Milhollin with respect to certain individuals, Aamodt Brief at ¶ 57, and TMIA claims that the Board "ignore[d] obvious evidence of cheating . . . because of a predetermined decision to support the restart of this reactor." TMIA Brief at 66. Ignoring TMIA's totally unsupported and unwarranted comment about the Board's predetermination, see Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-644, 13 N.R.C. 903, 923 (1981), Licensee has only to point to the findings just discussed to demonstrate the thoroughness with which the Board reviewed the record. The Board did not ignore relevant record evidence as to any individual.

The parties also sling serious charges at the Board without the slightest evidentiary support. UCS suggests that the retention at TMI-1 of certain individuals, including Messrs. G, H, Shipman, Husted and U, "sends a clear signal to all GPU employees as well as the rest of the nuclear industry that stonewalling the NRC is a profitable policy." UCS Brief at 7. Similarly, TMIA announces that "this Board has given a clear signal to the Licensee, to all nuclear facilities, and to the public, that it will tolerate lies, half-truths, and cheating . . . ." TMIA Brief at 52. Finally, the Commonwealth chimes in with the statement: ". . . tolerating the types of conduct displayed by G, H and Mr. Husted . . . may actually send a

message to other operators that this type of behavior will not be dealt with severely." Commonwealth Brief at 26. Inflammatory comments like these do nothing to enhance the arguments of these parties, nor do they aid the Appeal Board in its review of the record. Indeed, they indicate a lack of seriousness on the part of these parties.

3. Amount of cheating uncovered during Reopened Proceeding. The Aamodts and TMIA suggest that cheating at TMI-1 undoubtedly was widespread and that quite a bit of this cheating was not uncovered during the reopened proceedings. Aamodt Brief at ¶¶ 58-61, 63, 66-69; TMIA Brief at 41, 57-59. As Licensee discusses below, the reasons relied on by these intervenors to bolster their exaggerated claims are not supported by record evidence.

Specifically, the Aamodts complain that the Board presented no evidence in support of its finding that "some thirty to forty licensed members of the TMI-1 operating staff did not cheat . . . ." Aamodt Brief at ¶ 58, citing Cheating PID at ¶ 2043. In fact, the Board clearly indicated that because of the intense investigation conducted throughout the hearing itself, and because of the large number of rumors that became repetitive and finite, it could be concluded that most, if not all of those who cheated were exposed, and that the great majority of the licensed operators -- thirty to forty -- did not cheat. Cheating PID at ¶¶ 2042-43.

The Aamodts continue by pointing to a number of statements which supposedly indicate that: (1) cheating was widespread and commonplace at TMI; (2) Licensee's "test" administration was loose; (3) providing or receiving an answer or two to a question was not cheating; and (4) some operators did not believe Mr. O should be terminated for his cheating on the NRC exams. Aamodt Brief at ¶¶ 66-67.86/ In fact, many operators did indicate on the stand, and Licensee did concede, that past administration of quizzes during the cyclical training program for licensed operators were very loose and cooperation did occur. However, administration of NRC exams was perceived to be strict, and cooperation clearly was forbidden. See, e.g., Tr. 25,695-98, 25,719 (Mr. GG); Tr. 25,967-74 (Mr. OO); Tr. 26,305-07, 26,317-18 (Mr. V); Tr. 26,452-56 (Mr. WW); Tr. 26,607-09 (Mr. T); Tr. 26,807-14 (Mr. U).

In addition, certain operators recognized the possibility that providing or receiving an answer to a question might have occurred. But there were only two operators who discussed this matter and these two were speaking strictly of a spontaneous, oral exchange of information in the hallway during an exam.87/

86/ The Aamodts cite to certain of their proposed findings which were filed late and not admitted into the record. See Aamodt PF at ¶¶ 162-63. Licensee has not responded to the arguments therein, but only to the record evidence on which the Aamodts have relied.

87/ To the extent the Aamodts rely on Mr. Shipman's testimony to support the proposition that providing or receiving an answer to a question was commonplace, Mr. Shipman was simply describing his own conduct which he voluntarily reported. Tr. 26,352, 26,358, 26,365-67 (Shipman); see pp. 92-95, supra.

See Tr. 25,714 (GG), 26,837-39 (Mr. U). Moreover, these operators either were not asked on the stand, or if asked, admitted that before the O/W cheating incident, they hadn't thought very much about whether such conduct would have been considered cheating. See Tr. 25,714 (Mr. GG: was not asked whether conduct was cheating); Tr. 26,837-39 (Mr. U: admitted he would not have thought about whether conduct was cheating); Tr. 26,352 (Mr.Shipman: exchange of answer at machine first considered insignificant).88/ Finally, the operators who testified about Mr. O acknowledged that he had cheated, see, e.g., Tr. 25,993 (Mr. OO); Tr. 26,317 (Mr. V); Tr. 26,579, 26,581 (Mr. I), but because of his perceived capabilities and long years of service with Licensee, they agreed that he should be removed from nuclear-related activities but felt he should not be fired. See Tr. 24,194 (Ross); Tr. 25,767-68 (Mr. G); Tr. 26,310 (Mr. V); Tr. 26,532, 26,570-71 (Mr. I).89/

The Aamodts conclude from the evidence cited that widespread cheating must have occurred. Aamodt Brief at ¶ 69. They are wrong. First, as noted above, the operators' testimony does not

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88/ The other transcript citations noted by the Aamodts are unrelated to the textual statement they are said to support. See Tr. 26,452 (Mr. WW); Tr. 26,495-90(sic) (Mr. KK); Tr. 25,696 (Mr. GG); Tr. 26,807 (Mr. U); Tr. 25,968-69 (Mr. OO); Tr. 25,671 (Boger); Tr. 26,608 (Mr. T); see also n.103, infra.

89/ The other transcript cite does not support the Aamodt claim. See Tr. 25,703 (Mr. GG: concern that Messrs. O's and W's cheating was premeditated; discussion about why Mr. W may have cheated).

support such a broad conclusion. Moreover, the Board noted and rejected this "philosophical" argument, responding that there was no justification for assuming that candidates cheated simply because the opportunity existed. The better assumption with respect to company-administered quizzes was that the rational, serious candidates used them as a practice test of their ability to pass the NRC exams. Cheating PID at ¶ 2044. The Board's rationale is far more realistic and more reasonable than that of the Aamodts.

The Aamodts next argue that witnesses were reluctant to testify against their colleagues, suggesting, without specifically concluding, that information about cheating was therefore withheld. This is a bootstrap argument, based on the Aamodts' proposed findings, which discuss the alleged withholding of information by operators A and I with respect to the cheating of Messrs. O and W; by Mr. Shipman with respect to his questioner; by Mr. Husted with respect to his overheard rumor and his alleged solicitation of an answer from Mr. P; and by Mr. KK with respect to a telephone call he received from someone claiming to be Mr. U. Aamodt Brief at ¶ 63, citing Aamodt PF at ¶¶ 37-74. Licensee already has discussed the conduct of Messrs. A and I, see p. 107, supra; Mr. Shipman, see pp. 92-95, supra; and Mr. Husted, see pp. 85-92, supra; and the Aamodts have pointed to no facts which would lead Licensee to alter its position.

As for Mr. KK allegedly withholding information, the Aamodts claim that he "withheld information during the first [I&E]

investigation of the cheating incident," Aamodt PF at ¶ 70; and that he should have told his management about the incident sooner than he did, id. at ¶ 73.90/ In fact, Mr. KK was never interviewed during the first I&E investigation, so he could not have withheld any information at that time. See Staff Ex. 26. As for his failing to go to his management sooner, he testified that after speaking to Mr. O about the incident, he (Mr. KK) believed that the caller had lied about the purpose of the call, and perhaps about his identity. Thus, all he knew was that someone had called with a question that Mr. KK did not answer, and he did not think this constituted enough substantive information to merit a report to management. Tr. 26,473-75 (Mr. KK). It was only before his I&E interview that he felt he should tell management. Staff Ex. 27 at 32. Licensee finds this perfectly reasonable.

The Aamodts also note I&E Investigator Ward's comment that peer group loyalty may have caused operators to fail to point accusing fingers at each other. Aamodt PF at ¶ 42, citing Tr. 25,386-87 (Ward). The Board also realized that operators may hesitate to accuse each other, but significantly, these operators freely discussed rumors which became repetitive and finite. Thus, the Board reasonably believed that these operators reported

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90/ The Aamodts wisely refrain from arguing that Mr. KK refused to indicate all that he knew or that his testimony was false, for Mr. KK's testimony was deemed thorough and completely credible. See Cheating PID at ¶¶ 2179-82; SMR at ¶¶ 123-27.

as rumors most if not all of the cheating obvious enough to be observed. Cheating PID at ¶ 2043.

In sum it may be true, as the Board noted, that a certain amount of cheating was not uncovered during these proceedings. Nevertheless, it is probable, because of the intensive examination during the hearing and the nature of the testimony on rumors, that most, if not all of the cheating of any significance to this proceeding has been exposed. See Cheating PID at ¶¶ 2041-43.

D. TMI-1 Management Integrity

1. Operations. Both TMIA and the Aamodts pursue allegations against the Manager of Plant Operations, Mr. Michael Ross, which are not supported by the record and, accordingly, were rejected by the Licensing Board. TMIA Brief at 31-33, 34-39; Aamodt Brief at ¶¶ 64-65; see generally Cheating PID at ¶¶ 2192-2225. The allegations made against Mr. Ross by an anonymous informant, Mr. YY, had the most serious implications of the entire cheating inquiry because of Mr. Ross' important role as the head of the operations staff at TMI-1. Cheating PID at ¶ 2192.

The crux of TMIA's criticisms of the Board's findings on the allegation that Mr. Ross improperly broadened the answer key is that in TMIA's view, the Board improperly reversed a number of the Special Master's findings because they turned "directly on witness credibility, . . . particularly [the testimony of

of of Mr. Ross and Mr.] YY." TMIA Brief at 34.91/ This claim, which was unsuccessfully advanced, virtually verbatim, before the Board, is simply incorrect.92/ A review of the Special Master's

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91/ While TMIA's discussion of Mr. Ross begins under Section B(1) of its Brief, pages 31-33, TMIA does no more than make unsupported allegations about the partiality of the Licensing Board, based on its endorsement of the Special Master's findings on Mr. Ross. "[I]n administrative hearings as in court cases, rulings and findings made in the course of proceedings are not in themselves sufficient reasons to believe that the tribinal is biased for or against a party." Diablo Canyon, supra, ALAB-644, 13 N.R.C. at 923 (1981); Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear 1), ALAB-224, 8 A.E.C. 244, 246, rehearing den'd, ALAB-227, 8 A.E.C. 417 (1974), reversed sub nom., Porter County Chapter v. A.E.C., 515 F.2d 513 (7th Cir. 1975), reversed summarily and remanded sub nom., Northern Indiana Public Service Co. v. Walton League, 423 U.S. 12 (1975), aff'd on remand, 533 F.2d. 1011 (7th Cir. 1976), cert. denied, 429 U.S. 945 (1976).

92/ For example, TMIA is wrong in suggesting that the Board improperly found Mr. YY's testimony incredible, thereby disregarding Judge Milhollin's observations of Mr. YY's demeanor. TMIA Brief at 36-37. The Board's conclusions about Mr. YY's testimony had nothing to do with Mr. YY's demeanor on the witness stand. Rather, the Board carefully reviewed Mr. YY's testimony, determined precisely what Mr. YY had said and recollected, and considered what inferences could reasonably be drawn from Mr. YY's testimony. Compare Cheating PID at ¶¶ 2200-2205 with TMIA Brief at 35-37.

While TMIA also implies that the Special Master based his findings concerning Mr. Ross on the credibility of other witnesses, including the NRC exam proctor, Mr. Bruce Wilson, and various examinees, see TMIA Brief at 35, in fact, it was Mr. Wilson's opinion that, based on his seven year association with Mr. Ross, Mr. Ross would never countenance any plan to lure him (Mr. Wilson) from his proctoring. Staff Ex. 27 at 9. It was also the I&E investigator's opinion that Mr. Ross' version of the facts was more accurate than Mr. YY's (although the investigator could understand how Mr. YY could have misinterpreted Mr. Ross' discussion of the situation). Tr. 25,437-38 (Baci). Moreover, none of the other individuals who overheard the same or a similar conversation with Mr. Ross understood Mr. Ross to have done anything improper. Staff Ex. 27 at 24, 26, 27. (Messrs. KK, GG, RR); Tr. 25,688-89 (Mr. GG). Contrary to TMIA's assertion, Mr. RR, an STA questioned on these allegations certainly did not think Ross was untruthfully bragging. TMIA Brief at 35. Rather,

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Report establishes that while Judge Milhollin did evaluate the credibility of these witnesses, the Special Master's conclusions were based primarily on his analysis of documentary evidence (particularly the NRC "A" exams), perceived inconsistencies in the record, circumstantial evidence and inferences drawn by Judge Milhollin from all of this evidence. See SMR at ¶¶ 153-178; Cheating PID at ¶ 2193. Similarly, the Board's findings consist primarily of a detailed analysis of the record evidence and the reasonable inferences that can be drawn therefrom. See, e.g., Cheating PID at ¶¶ 2200-2224. In support of its contrary thesis, TMIA has often mischaracterized the evidence to which it refers.93/ TMIA also challenges the Board's analysis of the exam

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he recalled Mr. Ross' comments as responsive to griping by operators, in an effort to cheer the group up. Mr. RR "did not get the impression that [Mr. Ross] had done anything improper during his review of the NRC tests." Staff Ex. 27 at 27-28.

93/ TMIA cites Mr. RR's written statement as evidence of the "sinister" response of the operators to Mr. Ross' statements, -- a preposterous interpretation at odds with Mr. RR's stated view. Staff Ex. 27 at 27-28; see n.92, supra.

TMIA refers to a statement of Mr. O, one of the two individuals who cheated on the April, 1981 NRC exam, to suggest that Mr. O agreed with TMIA's view that Mr. Ross intentionally kept proctors out of the exam room. TMIA Brief at 37, citing Tr. 26,218 (Mr. O). The statement, that "[i]t is difficult to see how Mr. Ross could believe that honest operators would welcome the absence of a proctor," was not made by Mr. O. But see SMR at ¶ 152. In fact, Mr. O was not even cross-examined on the Ross allegations when he testified in the reopened proceeding.

In its discussion of Mr. YY, TMIA asserts that Mr. YY has been in "personal jeopardy" since he informed the NRC Staff of his views on Mr. Ross' conduct during the April, 1981 NRC exams. TMIA Brief at 37-38. This very serious statement is unsupported by citation to the record. This is not surprising, however, since there is absolutely no record support for such a proposi-

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changes in question. TMIA Brief at 38-39. Here, again, TMIA's analysis is faulty.94/

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tion.

TMIA also incorrectly maintains that the Board mischaracterized the record in finding that Mr. Ross did not know whether the changes he proposed to the exam were accepted. TMIA Brief at 36. But see Tr. 24,161-62, 24,334 (Ross); Staff Ex. 26 at 12; see generally Cheating PID at ¶ 2209.

94/ TMIA is wrong in its analysis of the changes proposed to question B.5.a on the "A" RO exam. TMIA's position is that the proposed changes to this question are not proper because the second part of B.5.a was "eliminated." TMIA Brief at 38. While the phrase, "lowers seal No. 1 P" may clarify the phrase "Lowers pressure in the No. 1 seal area," as TMIA claims, what is important is that this clarification responded to the second question included in B.5.a, which was not directed at the function of the bypass line, but concerned the secondary effect of opening the No. 1 seal bypass line on the (bypassed) No. 1 seal. See Staff Ex. 33. (In contrast, the first B.5.a question asked for a statement of the purpose of the No. 1 seal bypass line, which was to allow more water to flow past the radial bearing thereby supplementally cooling the radial bearing. Id.) The Board legitimately took exception to Judge Milhollin's suggestion that the change proposed by Mr. Ross to the answer to this second question was improper because it, in effect, eliminated the question. Rather, the proposed change arguably eliminated the incorrect Staff answer that lowering the P prevented rather than caused binding and contact of seal faces. See generally Lic. Comments on SMR at ¶¶ 58-67; Cheating PID at ¶¶ 2212-2220.

With respect to TMIA's challenge to the Board's understanding of question C.2.b on the "A" RO exam, TMIA mischaracterizes the Board's findings in stating, "The Board has concluded that the suggested answer key change by Ross and Boltz was improper." TMIA Brief at 39, citing Cheating PID at ¶¶ 222. In fact, although the Board agreed with the Staff's rejection of the proposed change, the Board also stated that the proposal was not unconscionable given the fact that the question asked a chemistry question (about the competing effects that determine primary pH) which called for an answer (lithium hydroxide and boric acid) which was different from actual plant practice (boric acid is used to control core reactivity, not pH). See Staff Ex. 33; see generally Cheating PID at ¶¶ 2221-2223. Thus, contrary to TMIA's assertion, see TMIA Brief at 39, the proposed change certainly was reasonable, if not technically the best answer. Furthermore, TMIA is wrong that the proposed change helped "practically no one

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The Aamodts do not discuss the evidence with respect to the Ross issue at all. They simply register their preference for the Special Master's findings and baldly assert that "[t]he Board did not include any analysis of the Special Master's finding or the parties' comments," Aamodt Brief at ¶¶ 64-65, a viewpoint which flies in the face of the Board's careful resolution of the Ross allegations. Cheating PID at ¶¶ 2192-2225.95/

2. Training. Both the Aamodts and TMIA challenge the capability and/or the integrity of various of Licensee's training managers. Aamodt Brief at ¶¶ 73-75, 78; TMIA Brief at 50, 62-63. The Aamodts do not understand the Board's failure to recommend the removal of Dr. Long and Mr. Samuel Newton from the management of the training department. Aamodt Brief at ¶ 73. With respect to Dr. Long, the former GPU Nuclear Director of Training & Education who is now the Vice President of Nuclear Assurance, the Aamodts maintain that this result is mandated from the Board's finding Dr. Long responsible for the failures of the training department. Id. The Aamodts also contend that Dr. Long "appeared unknowledgeable and ineffective." Id. at ¶ 74.

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but the reviewers themselves." Id. Eight individuals did not mention boric acid in their answers. See Staff Exs. 37B, 37I, 37L, 37G, 37K, 37H, 37F, ; see generally Lic. Comments on SMR at ¶¶ 68-73.

95/ Regarding the advisory function of the Special Master and the obligation of the Board to review and analyze the record on its own, see Cheating PID at ¶ 2035; contra Aamodt Brief at ¶ 64.

While it is true that the Board faulted Dr. Long for the training department's quality assurance failure, which was the principal and proximate cause of the breakdown in the integrity of the training and testing program, this criticism is far from a general castigation of Dr. Long's capabilities. As the Board noted, Dr. Long has very impressive credentials, including extensive university and industry experience. Cheating PID at ¶ 2398; see generally Management PID at ¶ 171. Moreover, the significant upgrading of the TMI training curriculum and department since the TMI-2 accident has occurred under Dr. Long's direction. Id. at ¶¶ 169, 171.96/

The Aamodts also question Dr. Long's integrity, alleging that he misled the Board in the initial proceeding into believing that the use of open book tests in the operator requalification program was no longer permitted.97/ Aamodt Brief at ¶ 73; see

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96/ While the Board was uncertain from Dr. Long's testimony whether he fully understood that the Training Department failed in its QA and QC responsibilities, see Cheating PID at ¶¶ 2406-2407, Licensee believes that Dr. Long's testimony does reflect this understanding. Dr. Long emphasized that because cheating was "essentially incomprehensible" in this health and safety context, the department failed to focus on administrative procedures to prevent such misconduct, directing their attention, instead, to the substantive adequacy of the training programs. Long, ff. Tr. 24,925, at 3. Dr. Long recognized that this omission in instruction "was clearly a mistake." Id. In his view, this mistake stemmed from the "unspoken" and "second nature proposition" that one was to do one's own work, and that cheating is "totally unacceptable behavior." Id.

97/ According to an operator instructor, Mr. Brown, operator exams had never been given open-book. Tr. 24,739-41 (Brown). However, the old procedure did permit this option.

also TMIA Brief at 62-63. The Board also was concerned with this subject. Cheating PID at ¶ 2323. In fact, the closed book exam requirement was formalized on a timely basis, viz., the procedure was revised and formally mandated on April 15, 1981, within two months after the mid-February commitment letter to the NRC. Tr. 12,740 (Long), Tr. 24,739 (Newton). Thus, it was in effect during the summer of 1981, and it was expressly applicable to all of the Category T makeup tests. See Lic. Ex. 63 (summary of primary TMI-1 operator exams given since March 28, 1979).98/ While it is not possible to prove that all tests given after April of 1981 in fact were taken closed book because of the absence of full-time proctors until October of 1981, it is only because this determination cannot be made that Dr. Long's testimony can be considered misleading; viz., because there was no administrative mechanism in place as of April, 1981 to ensure that the new procedure was implemented. Certainly, however, it was Dr. Long's understanding when he testified that, with the existence of a procedure requiring closed book operator requalification tests, these tests would be taken closed book. It was only when the cheating incidents were discovered that Dr. Long,

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98/ The Board based its conclusion on the SMR at ¶ 50, which in turn relied on the testimony of Mr. GG about the casual test-taking attitude formerly existent at TMI. Tr. 25,695-96 (Mr. GG). (While Mr. GG said that there was no formal exam procedure, he is either incorrect or referring to an earlier time period.) This problem, however, is the same one readily admitted by Licensee; namely, that it failed to instruct, police or audit for cheating during tests, relying, instead, on what was believed to be understood and honored by the operators.

specifically, and Licensee's management, generally, realized they were looking at a "paper curtain," as the Board put it, Cheating PID at ¶ 2323, which unquestionably had to be pierced and proper implementation of the procedure assured through detailed test administration procedures.99/

The Aamodts also impugn the character of Mr. Newton, the TMI Operator Training Manager. Aamodt Brief at ¶¶ 73, 75, 78. There is no evidence (or citation provided by the Aamodts) to support the proposition that Mr. Newton "concealed the 'coaching' techniques used to facilitate the operators' passing and the 'loose' administration of the tests." Aamodt Brief at ¶ 73;100/ see also Aamodt Brief at ¶ 75 ("Mr. Newton was not candid about the 'loose' test administration when he testified in the Reopened Proceeding"). In fact, the record reflects Mr. Newton's candid admission that exam instructions did not include the directive

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99/ The Aamodts also refer in their indictment of Dr. Long to the 1982 incident in which RWP tests were not secured in accordance with the new procedure. This incident is currently the subject of an Aamodt motion. In any event, the culpable individual is no longer with the company, and it is unreasonable to attribute this individual's failure to Dr. Long, who convened a meeting at TMI to personally discuss the procedure with the TMI training managers, instructors and administrative personnel. Long, ff. Tr. 24,921, at 26.

100/ The Aamodts also find Mr. Newton wilfully negligent for not enforcing closed book exams after February of 1981. Aamodt Brief at ¶ 73. While Mr. Newton readily acknowledged that the training department made a mistake in not policing its exams, it was certainly Mr. Newton's understanding that exams were being taken in a closed book fashion. In fact, there is no evidence to the contrary, i.e., that open book tests were taken, despite the evidence of other informal or "loose" practices, such as talking during weekly training quizzes.

not to cheat; that because protors were not monitoring misconduct but were only present to answer questions, they felt free to leave exam rooms; and, that there were no written procedures to safeguard operator exam materials. Newton and Brown, ff. Tr. 24,640, at 4-11.

Nor does the record support the Aamodt allegation of deliberate misrepresentation by Mr. Newton of pass-fail data. Aamodt Brief at ¶¶ 75, 79. This Aamodt accusation refers to Licensee's effort to correct a chart introduced previously into the record, see chart ff. Tr. 20,577, which was subsequently discovered to contain several errors. Tr. 24,642-51. From this effort, the Aamodts unreasonably, albeit imaginatively, find that Mr. Newton deliberately misrepresented the data. The Aamodts' citations in their Brief at ¶ 79 are totally irrelevant to the statement of which they are cited in support.101/ Furthermore, it

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101/ At Tr. 20,604, Mr. Newton is relating his understanding that SROs have more difficulty than ROs passing an RO exam because of the details on the exam which an SRO no longer deals with on a daily basis in his supervision of the plant. The uncertainty the Aamodts correctly pinpoint, here, related to the fact that Mr. Newton's understanding was not first-hand but, rather, was based on conversations with instructors at other facilities, outside contractors, and others in the industry. Tr. 20,603-04 (Newton). In sum, there is absolutely no disclaimer by Mr. Newton of the data in the chart in question. (At Tr. 24,645, Mr. Newton does suggest that he provided the data for the chart, but did not personally make up the chart which he sponsored in his testimony.) At Tr. 25,645, the other citation provided by the Aamodts in their Brief at ¶ 79, Mr. Newton is not even testifying.)

In addition in ¶ 75 of their Brief, the Aamodts also make the totally unsubstantiated insinuation that Mr. Newton's testimony on operator training hours was materially wrong. No record cite appears.

is peculiar for the Aamodts to fault Licensee for correcting an exhibit and, therefore, ensuring that the Board and the parties had available to them completely accurate information.

Finally, on page 50 of its Brief, TMIA suggests that the Supervisor of Licensed Operator Training, Mr. Brown, ought not to be employed by Licensee because of his lack of integrity in giving "convoluted and incredible" testimony. Without attempting to unravel what clearly was confusing testimony about a series of tests given on material taught by different instructors, including an outside consultant, see Tr. 24,660-75 (Brown, Milhollin); Tr. 24,773-77 (Brown, Blake), what is important to recognize is that while the Board found fault with the inconsistency in grading and the lack of clarity as to answers expected from examinees based on Mr. Brown's testimony, contrary to TMIA's statement, the Board did not find Mr. Brown incredible and, therefore, untrustworthy in his position as the Supervisor of Licensed Operator Training. Cheating PID at ¶¶ 2337-2341. Neither did the Special Master at ¶ 39 of the SMR, referenced by TMIA, impugn Mr. Brown's character.102/

102/ The Special Master did question the reliability of Mr. Brown's testimony that he would have marked a quiz answer wrong when he previously had marked it right. Obviously, the Special Master either did not understand or did not agree with Mr. Brown's reasoning in marking it right; namely, because the tests in question were taken by examinees who had attended a course given by an instructor-consultant who would have accepted the answer, Mr. Brown felt constrained to mark the answer right because the examinees probably had been taught that answer. See Tr. 24,775-77 (Brown). Nevertheless, the Special Master did not challenge Mr. Brown's integrity, as TMIA suggests.

E. Training Administrative Practices

The reopened proceeding encompassed the issue of past and present training administrative practices at TMI -- a subject addressed on appeal by the Aamodts, TMIA and UCS. While training documents, such as exams, were the subject of extensive inquiry during the reopened proceeding from the perspective of the ease with which they could be compromised, e.g., by cheating or coaching, the substantive adequacy of the TMI training program, which was examined in enormous detail during the initial management proceeding, was not relitigated. See § IV.B.2, supra. Thus, notwithstanding suggestions to the contrary by the intervenors, testimony was not received on the quality of the operator training curriculum, although operators were asked on cross-examination their opinion on the subject, see Cheating PID at ¶ 2343, and various quizzes, comprehensive tests and NRC license exams were made a part of the record for the limited purpose of investigating potential cheating.

With respect to past training administrative practices, the Cheating PID recognized Licensee's forthright acknowledgement of training administrative shortcomings. See, e.g., Cheating PID at ¶¶ 2324, 2328.103/ Based on this admission and the evidence on

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103/ Contrary to the Aamodts' suggestion that Licensee did not readily admit the test administration failures existent at TMI, Aamodt Brief at ¶ 66, Licensee management acknowledged this fact in its prefiled testimony and during the course of the reopened proceedings. See Newton and Brown, ff. Tr. 24,640, at 8-9, 11; Long, ff. Tr. 24,925, at 3-4; Tr. 24,022-26 (Hukill); Tr. 24,818-21 (Newton); see generally Cheating PID at ¶ 2410. (The Aamodts follow their statement about management's belated admis-

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which it was founded, the intervenors argue that the Licensing Board's recommended license conditions insufficiently respond to the problems identified as a result of the discovery of cheating on the April, 1981 license exams. In their view, based on this evidence, TMI-1 cannot be allowed to operate. See Aamodt Brief at ¶¶ 70-72; UCS Brief at 17-23; TMIA Brief at 62-64. For the most part, with the exceptions discussed below, there is little dispute over the facts at issue here. Rather, the Appeal Board must decide whether to endorse the Licensing Board's considered

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sion of poor test administration practices with a series of citations in support of the proposition that "[a]n opinion widely-held by the operators was that providing or receiving an answer to a question or two was not cheating." Aamodt Brief at ¶ 67. These citations do not support this broad Aamodt indictment, although Mr. Shipman did testify that while he initially thought the incident when someone asked him a question in the hall outside the exam room was improper, he did not appreciate its significance until he had discussed the incident with Mr. Hukill. Tr. 26,352, 26,358, 26,365-67 (Shipman). See Tr. 25,714 (Mr. GG: he could see where the opportunity for people to ask each other questions at the coffee stand during an exam could present itself and operators possibly might take advantage of it); Tr. 26,837-39 (Mr. U: he recognized that he could have spontaneously and unknowingly provided an answer to someone in a hall during an exam, but he did not knowingly do so); Tr. 26,452 (Mr. WW: he heard no rumors of corroboration or cheating on weekly quizzes), Tr. 26,485-95 (Mr. KK: testimony on a number of subjects, none of which suggest Mr. KK thinks that providing or receiving an answer to a question on a test was acceptable); Tr. 25,696 (Mr. GG: the seriousness of weekly tests not generally appreciated); Tr. 26,807 (Mr. U: there was cooperation on weekly quizzes, which Mr. U described as a group effort consistent with the crew concept); Tr. 25,968-69 (Mr. OO: believed cheating accepted on weekly quizzes but not on qualification or requalification exams); Tr. 25,671 (testimony of Mr. Wilson, the NRC Staff examiner); Tr. 26,608 (Mr. T: instructors expressly designated some quizzes as open book, some closed book and some as group efforts).)

judgment as to the appropriate response to the identified administrative shortcomings in the training department, a judgment that was based on extensive testimony and documentary evidence which the Board heard and evaluated over a several year period, including testimony from virtually all of Licensee's senior and junior managers of GPU Nuclear and TMI-1, from NRC Staff members who assessed Licensee's management capability, and from independent experts who evaluated Licensee.

The area of continued dispute with regard to past training practices at TMI is the degree to which the TMI operators have been coached to pass exams and, consequently, the degree of confidence which can be placed in their level of competence. The Aamodts argue that operators were coached to pass the April and October, 1981 license exams, that the issue of coaching remains unresolved, and that the Board therefore has no basis for depending on operators' performance level on NRC exams as evidence of the adequacy of Licensee's training program. Aamodt Brief at ¶¶ 28-30.

As the Board explained in detail in the Cheating PID, Licensee candidly admitted that with respect to the first two makeup rounds of the Category T test, the form of the test encouraged memorization rather than understanding of material, and may have focused individuals on passing the exam rather than increasing their grasp of the subject-matter. Cheating PID at ¶ 2340, citing Lic. PF-Cheating at ¶¶ 343-45. It was also Licensee's view, however, that coaching was avoided at TMI

through the use of the well-established educational method of criterion-referenced instruction, which utilizes behavioral learning objectives to focus student and instructor attention on the performance sought as a result of the instruction. Long et al., ff. Tr. 24,921, at 14. Of course, sometimes the learning objectives of the instructor call for memorization, e.g., learning NRC's radiation exposure limits, a formula, or a definition. Id. Nevertheless, considering the enormous amount of material encompassed by the NRC RO and SRO license exams, see Staff Exs. 33, 36, which are broken down into subject-matter or topical subparts during training (and testing) cycles at TMI, Licensee firmly maintained that operators are taught the necessary conceptual and factual subject-matter at TMI and, accordingly, are not simply coached to pass tests. Compare Lic. PF-Cheating at ¶¶ 334-341 and Cheating PID at ¶ 2334 with UCS Brief at 20 (which contains no record support).

UCS contends that the Board erred in failing to find Licensee's training program inadequate in content and method of instruction and, thus, not responsive to the Commission's August 9, 1979 Order. UCS Brief at 18-20.

Despite the limited scope of the reopened proceeding, in view of the findings of the Special Master, the Board reexamined the operator course content, which it had reviewed in detail during the initial management hearing. The Board found the training curriculum to be in compliance with 10 C.F.R. Part 55. Cheating PID at ¶¶ 2334-2335, 2342. However, the Board also

found that the evidence in the reopened proceeding did identify significant weaknesses in the quality of instruction which it believed required further examination and which should be assured of correction. Id. at ¶¶ 2334, 2337-2342. Accordingly, the Board imposed four training-related license conditions, the first three of which are directed towards ensuring that a systematic evaluation of the instructors' qualifications and methods is conducted and that criteria are established to ensure a high level of competence in instruction. Id. at ¶ 2347. Contrary to UCS' interpretation, UCS Brief at 19-20, although the Board agreed with Judge Milhollin that the evidence showed weaknesses in instruction, it disagreed with his conclusions about course content. See Cheating PID at ¶¶ 2334, 2400.

The Aamodts also dispute the Board's resolution of the adequacy of the operators training qualifications. Aamodt Brief at ¶¶ 28-32. Their dissatisfaction rests in large part on their view that the NRC license exams are not valid. Id. at ¶ 29.104/

104/ The Aamodts also state that the Board did not provide a basis for setting aside Judge Milhollin's findings on course content. Aamodt Brief at ¶ 30. While the Board agreed with the Special Master's identification of weaknesses in the quality of instruction, the Board explained that based on its familiarity with the operator program content, which was not even addressed by Licensee or the Staff in the reopened hearing, and its review of the exams in evidence, it disagreed with that aspect of Judge Milhollin's conclusions. Moreover, without regard to the merits of the Special Master's views on the content of the operator training program, a review of the SMR establishes that the Special Master's generalized findings essentially were founded on his review of the first two Category T makeup quizzes -- the quizzes Licensee agreed were inadequate, and the grades on which were nullified. See SMR at ¶¶ 242-251; see also UCS Brief, which cites SMR at ¶ 251. (While Judge Milhollin also had "doubts"

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See also id. at ¶¶ 94-96. Licensee believes that the NRC written exams, see, e.g., Staff Exs. 33 and 34, speak for themselves, and that they comprehensively cover required material. They also constitute the best available evidence on which to base a judgment whether operators could be coached to pass the exam, e.g., through memorizing answers, without really understanding the subject matter. The Appeal Board can also be assured by the fact that all TMI-1 operators are required to take an NRC Staff-administered oral exam oriented towards evaluating problem-solving and analytical ability, during which the NRC examiner probes the knowledge level of the examinee. See Boger, ff. Tr. 25,480, at 7-12; Tr. 25,541-43, 25,642 (Boger); Newton and Brown,

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about the subsequent November, 1981 Category T makeup quiz, apparently because of the prior quiz weaknesses, the November Category T quiz was both thorough and conceptual in nature. It required knowledge of design and procedure changes introduced at TMI-1 as a result of the TMI-2 accident, see, e.g., Lic. Ex. 69A, questions 1 and 7 and Lic. Ex. 69B, question 3; an understanding of the reactor conditions which led to the TMI-2 accident, see, e.g., Lic. Ex. 69A, question 2 and Lic. Ex. 69B, questions 1 and 6; and an appreciation of how to control such an event if it happened at TMI-1, see, e.g., Lic. Ex. 69A at questions 5, 6 and 8 and Lic. Ex. 69B at questions 5, 8 and 10.

In this regard, Licensee ferverently disagrees with the Aamodts that the operators' testimony was that the final Category T review session and test was not taken seriously by the operators. Aamodt Brief at ¶ 76. See Tr. 25,907 (Mr. H); Tr. 26,003 (Mr. OO); Tr. 24,813-16 (Newton); Tr. 26,407-09 (Shipman). The Aamodts' citations in support of their view utterly fail to support the Aamodt position. See Tr. 26,406 (Shipman description of first two Category T makeup tests, (not November test, which he discusses at Tr. 26,407-09); Tr. 25,695-96 (Mr. GG's discussion of initial Category T makeup quiz); Tr. 25,983 (Mr. OO's description of problems with first Category T makeup test).)

ff. Tr. 24,640, at 16; Cheating PID at ¶ 2364. Licensee's operators as a group performed well on the October, 1981 NRC exams and, in Licensee's view, this constitutes the assurance the Commission sought in its August 9, 1979 Order. Certainly, there is no reason to believe that individuals at TMI understand the materials covered by the NRC exam any less than other examinees or, more importantly, that passing the comprehensive examinations is possible if the individual fails to genuinely grasp a large body of knowledge, including concepts of reactor theory, as well as the nitty-gritty of procedures, and technical specifications.105/ But see UCS Brief at 21-23 (without record citations); TMIA Brief at 59-60 (argument without record citations); Aamodt Brief at ¶¶ 95-96;106/ see generally Cheating PID at ¶¶ 2363-2377.

105/ If anything, the TMI-1 control room staff was not sufficiently prepared (or what Mrs. Aamodt might have characterized as "coached") for the April, 1981 NRC exam which apparently focused unusually heavily on details of plant design and the specific wording of technical specifications, about which the operators generally were unprepared and were quite critical. Tr. 26,045-47 (Mr. A); Tr. 26,320-22 (Mr. V); Tr. 26,411, 26,414-16 (Shipman); Tr. 24,129-32, 24,343-45 (Ross); Tr. 25,652 (Boger). The October, 1981 RO exams apparently did not so emphasize this non-operational aspect of the subject-matter, although the SRO exam did, and was deemed, as a result, very difficult. See, e.g. Tr. 26,053-54, 26,056-59 (Mr. A); Tr. 25,683 (Mr. GG); Tr. 26,322 (Mr. V); Tr. 24,141 (Ross); see also Tr. 25,545 (Wilson).

106/ The Aamodts' citation in their Brief at ¶ 96 to Mr. Hukill's testimony is inaccurate. In this portion of his testimony, Mr. Hukill is simply explaining how the exams constitute one part of the qualification process, which also includes job performance and attitude. Tr. 23,975-77 (Hukill).

Finally, TMIA argues that the weaknesses in instruction identified by the Board based on the record in the reopened hearing are really "failures," and that the Board improperly faulted Licensee's training instructors rather than management for these failures. TMIA Brief at 60-62. TMIA is wrong on both counts. First, as the Board indicated, there has been no comprehensive, systematic evaluation of the TMI licensed operator instructors' qualifications or their methods, such as the Board required in its license conditions.107/ Consequently, it would be improper and unreasonable to base a judgment on instructor capabilities on the sporadic and often tangential information on this subject adduced during the reopened proceeding. Cheating PID at ¶¶ 2337, 2341. Rather, the Board appropriately concluded that, in view of the weaknesses it believed the record established, operator instructor qualifications and methods should be examined and the correction of weaknesses assured. Id. at ¶ 2337. For purposes of restart, the Board was reassured by the fact that the TMI-1 operators have been required to take and, as a group fared well on, the October, 1981 NRC license exams. Id. at ¶ 2341. Over the next two years, identified instructor weaknesses will be required to be corrected in accordance with

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107/ While there has not been a comprehensive, systematic evaluation of all of the TMI instructors' qualifications and their methods, the qualifications of the teaching staff that participated in the OARP, including the TMI licensed operator instructors, were favorably assessed by the OARP Review Committee during the course of their evaluation of the OARP program. See Lic. Ex. 27 at 1-2, 7-8, 30, 35-36, 50-63.

the Board's recommended license conditions.108/ Id. at ¶ 2347.

With respect to TMIA's claim that the Board unreasonably fails to fault Licensee management, the Board's decision belies this assertion. The Board's recommended license conditions are directed at Licensee, not at TMI instructors. Id. The Board's criticisms of training are specifically directed at management's failure to ensure the integrity of the training program. Id. at ¶¶ 2401, 2407.109/ Despite these failures, however, "[a]fter again evaluating our partial initial decision on Licensee's training program in light of the developments in the reopened proceeding, [the Board] remain[ed] convinced that the evidence supported the conclusion that Licensee's training program was well designed to train qualified operators and that there was a rational plan to implement the program." Id. at ¶ 2399; see also id. at ¶¶ 2400, 2410.110/

108/ See p. 158, infra, where Licensee commits to complete its evaluation of licensed operator instructors against NRC-approved GPU Nuclear criteria prior to restart.

109/ The Board-imposed fine on Licensee, the basis for which is now being evaluated by I&E pursuant to Commission Order CLI-82-31, October 14, 1982, also was based on the identified failures of Licensee's management. Cheating PID at ¶ 2411. In accordance with CLI-82-31, we do not here address the appropriateness of the Board's finding.

110/ The Board went on to state that if it were not convinced that Licensee is capable of correcting and intends to correct the problems revealed by the reopened proceeding, the Board would not have concluded this proceeding in favor of restart. Cheating PID at ¶ 2412.

F. Management's Response To Cheating

In assessing the degree to which Licensee management was culpable for the cheating which occurred, and the even more difficult question of whether Licensee has the proper attitude towards the responsibility which would be entrusted to it if it were again authorized to operate TMI-1, the Board considered many factors. Of concern to the Board was not only the concrete question of whether management was involved in cheating, see Management PID at ¶¶ 2192-2225, 2328, but also such issues as (i) management's responsibility for the cheating, id. at ¶¶ 2396-2410; (ii) the adequacy of management's response to he cheating incidents, including whether management interfered with the Staff's investigations, id. at ¶¶ 2229-2234, whether management properly investigated the issues itself, id. at ¶¶ 2235-2236, and whether management fully addressed the issue in discussions with its staff, properly inculcating them with a fundamental understanding of their responsibilities and establishing open lines of communication, id. at ¶¶ 2238-2242, 2328; and (iii) whether management instituted appropriate procedures in response to cheating incidents, id. at ¶¶ 2329-2351. After examining these issues, the Board found no evidence that management encouraged or condoned cheating in the relevant NRC or company-administered exams, id. at ¶ 2047; that Licensee sincerely tried to uncover and report every instance of cheating; id. at at ¶ 2042; that where Licensee has seen the need and the justification for personnel action, it has taken it, id. at

¶ 2057; that in general, Licensee has recognized and candidly conceded the weakness of some of its programs, particularly in training, id. at ¶ 2060; that management had a legitimate purpose in trying to be present during NRC investigation interviews of Licensee's employees, id; and that the Board did not find any bad faith or inherent incompetence in upper-level TMI-1 management from the cheating episodes, id. at ¶ 2066. Various aspects of these issues, which formed the basis for the Board's ultimately favorable resolution, have been challenged by appellants, as discussed below.

1. Licensee investigation of cheating. UCS criticizes the Board for "excusing" Licensee's investigation of cheating on the grounds that it was "naive."111/ The Aamodts announce that Licensee's investigation "attempted to cover" the cheating of operators G and H. Aamodt Brief at ¶ 77. Both intervenors unfairly distort the record.

UCS is wrong in claiming that the Board "excused" Licensee's cheating investigation. While it is true that the Board found the overall investigation "adequate," Cheating PID at ¶ 2271, the Board also criticized the investigation in several respects, see id. at ¶¶ 2227-71. Moreover, contrary to the Aamodts' unsupported suggestion that Licensee tried to cover up the conduct of

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111/ UCS also cites to numerous Board findings with respect to Mr. Wilson's cheating investigation with no comment, explanation or illucidation. UCS Brief at 16-17. Licensee sees no need to respond to this restatement of the Cheating PID; the PID stands on its own.

Messrs. G and H, the Board found that John Wilson did not misrepresent explanations given to him by those two operators, id. at ¶ 2253, and that the fact that more exculpatory than inculpatory evidence was presented could be explained, at least in part, by the nature of the evidence available, id. at ¶ 2251. Thus, the record contains absolutely no evidence to suggest that Mr. Wilson covered up any information whatsoever.

2. Licensee management presence during Staff investigations. Both TMIA and the Aamodts complain that the presence of TMI-1 management inhibited the I&E investigations,112/ and that the overall effectiveness of the investigations was in fact affected. TMIA Brief at 58-59; Aamodt Brief at ¶ 61, citing Aamodt PF at ¶¶ 100-168. TMIA adds that the second I&E investigation was not cured by removing management presence, for an operator who withheld or falsified information during the first interview was not likely to reveal it later. TMIA Brief at 58-59, citing SMR at ¶ 291.

The Board considered these arguments and rightly found that because the evidence against Messrs. O and W was strong, the first I&E investigation was indeed effective. Cheating PID at ¶ 2230. As for the speculation that operators who were interviewed by I&E the first time withheld evidence or lied and then

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112/ Licensee was merely following consistent NRC practice in prior NRC investigations, which allowed interviewees to have representatives of their choice accompany them. See Tr. 25,449-50 (Ward).

continued to do so in later interviews, Licensee notes first that only four operators (Messrs. Ross, U, T and Husted) were interviewed with management present and then reinterviewed.113/ See Staff Exs. 26-28. On the other hand, eleven licensee employees were questioned only during the second or third I&E investigations when management was not present. See Staff Exs. 27, 28. The four reinterviewed generally were questioned about topics not discussed in the first interview, so no reason existed for becoming "locked" into a position. Moreover, Mr. Husted, who was requestioned about matters discussed during his first interview,114/ in fact added information not provided the first time. See p. 89, supra.

3. Operator attitudes and management response. The Aamodts claim that management was responsible for the operators' bitter and disrespectful attitude towards the NRC exams and training quizzes. Licensee has conceded that management was responsible for failing to "instill an attitude of respect for the company and NRC examination process." See Cheating PID at ¶ 2328, adopting Lic. PF-Cheating at ¶¶ 200-231, 235. The Aamodts also claim that management knew of this attitude, knew as

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113/ Nelson Brown was interviewed during the first I&E investigation and then reinterviewed, but no member of management was present during his first interview. See Staff Ex. 26.

114/ When Mr. Husted was asked on the stand whether the presence of Mr. Christman, Manager of Administration TMI-1, during his first I&E interview affected his responses to the investigators, he responded, "not at all." Tr. 26,975 (Husted).

well of rumors or actual incidents of cheating, before the O and W cheating incidents were discovered in July, 1981, and that Licensee has presented no evidence to show that this "problem" has been resolved. Aamodt Brief at ¶¶ 78, 80, 82. The Aamodts have simply missed, misconstrued or interpreted too narrowly certain record evidence.115/

The Aamodts' allegation that management, including Messrs. Arnold, Ross and Toole, knew of disrespect and rumors of cheating before the O and W cheating incident116/ is false.117/ As to

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115/ The Aamodts also argue that the Board improperly squelched their effort to raise the issue of operator attitude during the initial management proceeding. Aamodt Brief at ¶ 82. While the Board may have asked the Aamodts whether they really needed to call Harold Denton as a witness on this subject as the Aamodts claim, although no record citation is provided to substantiate this fact, the issue of operator attitude was pursued in the initial management proceeding. Management PID at ¶ 267. In their Brief, the Aamodts cite no facts in the initial proceeding record to dispute the Board's satisfactory resolution of this issue. To the extent the Aamodts, in hindsight, argue that operator attitude evidently was a problem, given the operators' resentment about retaking the NRC exams, the record in the reopened proceeding establishes that the degree of bitterness felt by the operators was not apparent until management began meeting with the licensed operators after the discovery of cheating on the NRC exams, a fact substantiated by the absence of any indication of the extent of this understandable viewpoint at the time of the initial proceeding. See, e.g., Hukill, ff. Tr. 23,913, at 12.

116/ Mr. Ross did testify that he had occasionally heard rumors of cheating at TMI-1 during his eleven-year career, but he was confident that these stories were nonsensical and he ignored them. Ross, ff. Tr. 24,127, at 5.

117/ The Aamodts cite to a statement by Mr. WW (incorrectly noted as Mr. GG), which indicates that Mr. WW had heard rumors of cheating since 1977, and that shift supervisors, shift foremen and Mr. Ross might have known about them. Tr. 26,463 (Mr. WW). However, Mr. WW goes on to say that, "I do not know if they knew or not." Tr. 26,464 (Mr. WW). Thus, this pure hypothesis cannot be used to indicate management knowledge of cheating since 1977.

Mr. Arnold, Licensee has admitted that in hindsight, he should have asked Messrs. O and W why they cheated. See Cheating PID at ¶ 2235. However, his testimony that such inquiry would have been fruitless because of the trauma Messrs. O and W were facing, and that he (Mr. Arnold) assumed they had cheated for any or all of several reasons surely is not unreasonable. See Tr. 23,784-85 (Arnold). Moreover, neither logic nor record evidence dictates the conclusion that the only reason Mr. Arnold did not ask Messrs. O and W these questions is because he, or Licensee, knew of their disrespect for NRC examinations. See Cheating PID at ¶ 2236.

Mr. Ross testified on the stand that he knew of the bitterness about taking the April, 1981 NRC exam both before and after the exam. Tr. 24,177-79 (Ross). However, he stressed that, in his view, this sentiment did not affect the way the operators studied for the exam. On the contrary, "... they applied themselves very, very hard." Tr. 24,179 (Ross). Mr. Toole spoke generally of poor morale and tension about NRC exams, but did not specify a time period during which he noted these attitudes. Staff Ex. 67 at 33. Moreover, contrary to the Aamodts' suggestion, he said he had no reason to suspect that any significant cheating had taken place other than that of Messrs. O and W. Id. at 32.

Finally, the record does reflect that as a result of the numerous meetings with the operators held separately by Mr. Hukill, Mr. Arnold and Mr. Richard Wilson, see Cheating PID

at ¶¶ 2237-40, the operators have come to understand and to respect the importance and seriousness of NRC exam procedures. See Tr. 23,983-84, 24,021 (Hukill: confident that operators now understand importance of honesty with respect to quizzes and NRC exams as a result of his meetings with them).

4. Operator certification. The Aamodts and TMIA dispute the adequacy of Licensee's operator certification process, the means by which Licensee determines whether operator candidates are ready and fit to take the NRC operator license examinations. The basis for the Aamodt view, unsuccessfully advocated in the initial management proceeding, is that operators who failed to pass the "mock" or "audit' comprehensive practice exam given by Licensee's expert consultant before the administration of the NRC exams, should not have been certified to take the NRC exams. Aamodt Brief at ¶ 83. See Management PID at ¶ 275. As Licensee explained in both the initial and reopened proceeding, while operators' grades on the audit exam are considered in determining whether to certify operators, this test score is not the only factor evaluated. In addition, consideration is given to a candidate's training and on-the-job performance and attitude, and whether the operator has previously been licensed (i.e., has successfully taken the NRC exams). Hukill, ff. Tr. 23,913 at 18-21; Ross, ff. Tr. 24,127, at 7-9; Tr. 24,054 (Hukill); Tr. 24,229-230 (Ross); Tr. 24,760-61 (Newton). While the Aamodts could rightfully argue that the certification process should have been formalized in a procedure, which is now the case, see

Hukill, ff. Tr. 23,913, at 18, see Tr. 24,052-55, 24-104-09 (Hukill), their continued assertion that successfully passing the practice exam ought to be an absolute prerequisite to taking the NRC exam is without merit. See also n.41, supra.

TMIA complains that it is inappropriate for the NRC Staff to continue to rely on Licensee to certify the integrity of the TMI-1 operating staff. TMIA Brief at 60-61. However, TMIA's argument is no more than an extension of their view that Licensee's management lacks integrity. TMIA takes no exception to the process Licensee uses to certify operators.118/

5. Impact of reopened proceedings on prior training findings. The intervenors all argue that, contrary to the Board's view, the evidence on training presented in the reopened proceeding critically undermines the Board's training findings in the Management PID. See Aamodt Brief at ¶¶ 22-23, 70-72, 84; TMIA Brief at 62-64; UCS Brief at 7-9. The crux of the intervenors' arguments is that (1) the Board's license conditions are necessary and, therefore, ought to be imposed as conditions prerequisite to restart; and (2) Licensee cannot be trusted to abide by its own or Board-imposed procedures and requirements and, consequently, restart ought not to be permitted under any circumstances. Licensee cannot and does not seek to avoid censure for the training problems which troubled the Licensing

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118/ To the extent TMIA condemns specific Licensee actions, e.g., the VV incident, these matters are addressed elsewhere.

Board and led to its proposed imposition of conditions on the TMI-1 operating license. Licensee does, however, take issue with the intervenors' characterizations of the significance of the training evidence produced in the reopened proceeding, and the reasonable inferences that can be drawn from that evidence about the fundamental integrity of Licensee's management.

Since the TMI-2 accident, the TMI-1 operators not only have been required to participate in an intensive training program, the Operator Accelerated Retraining Program, which, according to a panel of highly qualified independent experts, comprehensively reviewed the array of subjects which operators need to understand, see Management PID at ¶¶ 189-207 but they have been in training approximately one out of every six weeks on a full time basis since the accident, including weeks of time at the B&W simulator. Id. at ¶¶ 189-194. Many of these operators were previously licensed on TMI-1 but, nevertheless, have been required to take two additional RO written exams and one oral exam; of course, SROs have also taken the SRO license exams. Also, the operators have taken several mock comprehensive exams to prepare them for the NRC exams. See Lic. Ex. 63. In addition, the Category T subject matter has been repeatedly taught to and reviewed with the operators and all operators have now either passed (at the 90% level) the initial test on this important subject-matter or the makeup tests given in November, 1981. Id.; Brown, ff. Tr. 24, 695, attached grades. There is no basis for questioning the fact that the TMI-1 operators have been

extraordinarily prepared to operate TMI-1. While Licensee is willing and anxious to improve shortcomings in its training organization, e.g., through the development of training instructor criteria, there is no basis for finding that the public health and safety would be jeopardized if TMI-1 operators, many of whom have repeatedly passed NRC-administered license exams, operate TMI before all of the improvements are instituted. Certainly, the training and testing accomplished by the TMI-1 operators satisfies Item 1(e) of the Commission's August 9, 1979 Order. Contra UCS Brief at 7-9; Aamodt Brief at ¶¶ 22, 23, 84.

Perhaps more fundamental is the intervenors' attack on Licensee's integrity and consequent management competence. Licensee does not believe the record supports intervenors' view. To the contrary, Licensee forthrightly admitted its errors and oversights in its prefiled testimony in the reopened proceedings, proposed ways to correct identified problems, and expressed a determination to avoid similar problems in the future. See Tr. 23,630-34 (Arnold); Hukill, ff. Tr. 25,913, at 2-5, 16; Ross, ff. Tr. 24,127, at 5-6; Long, ff. Tr. 24,925, at 3-4, 25-26; see also discussion supra at § IV.E. The Board referred to Licensee's "unusually open and candid acknowledgment" as a necessary foundation for its having confidence in the TMI-1 training and testing program. See Advance Indus. X-Ray Laboratories, Inc., supra, 1 A.E.C. 281 (1960). While the identification of training deficiencies was precipitated by the discovery of cheating, Licensee must reemphasize the extent of its self-initiated

efforts to beneficially reorganize its nuclear activities overall and its training programs, in particular, to respond to lessons learned from the TMI-2 accident. See Management PID at ¶¶ 46-106, 170-195. Contra TMIA Brief at 64. In summary, then, despite the repeated challenges to Licensee's integrity, the Licensing Board, whose members have had the opportunity, over many months of hearings, to become familiar with Licensee's management, have found that Licensee cooperated fully in the reopened proceeding, Cheating PID at ¶ 2060; that while the Board disagreed with Licensee in several areas, in general, Licensee has recognized and candidly conceded the weakness of some of its programs, particularly in training, id. at 2060-2066; and that, with the additional Board-imposed conditions, the training administrative procedures are well-designed to protect the integrity of the TMI training program. Id. at ¶ 2068. Contra Aamodt Brief at ¶¶ 70-72. The Board also found Licensee unstinting in the resources devoted to the TMI training program and further found that Licensee cannot be faulted in the selection of the advice it sought for its training program, the credentials of its training managers or the general design of its training program. Cheating PID at ¶ 2400. In sum, the Board concluded that "the cheating episodes are not a reflection on upper-level management's competence, good intentions and efforts." Id. While the intervenors disagree with these Board findings, they cite no facts or arguments which were not carefully considered by the Licensing Board in reaching its resolution of these matters.

G. Management Response to 1979 Incident

TMIA at several points in its brief refers to an incident in 1979 in which the then Supervisor of Operations at TMI-2, Mr. VV, handed in to the TMI operator licensing training department written make-up exams which had been completed in part by a second individual, Mr. O.119/ TMIA Brief at 47-50, 52-53, 56-57, 64-65. See generally Cheating PID, ¶¶ 2272-74 (background). TMIA questions whether Licensee's subsequent actions with respect to Mr. VV were appropriate, whether related testimony by Licensee witnesses was believable, and whether the Licensing Board properly evaluated the incident and should have recommended sanctions against involved individuals.120/ We will deal with

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119/ UCS also discusses the 1979 incident in conjunction with its argument that upper level management competence has been implicated in the cheating episodes. See UCS Brief at 15-16. UCS did not participate in the hearings on this issue, see id. at 1, nor did they raise this matter in thier Comments on the Report of the Special Master. The majority of the points raised by UCS are encompassed by TMIA's arguments and therefore Licensee's responses to TMIA, infra, are equally applicable to UCS' arguments. The only issue not raised by TMIA is UCS' implication that Messrs. VV, Miller and Arnold views of VV's actions in 1979 as not constituting cheating is improper. However, UCS fails to acknowledge that, while Messrs. Arnold and Miller did not at the time view VV's actions as cheating per se, they did view these actions as totally improper, a view which was communicated to VV by Miller. See Cheating PID at ¶¶ 2279, 2281. Further, UCS does not take exception to the disciplinary actions taken against VV as a result of the 1979 incident.

120/ In CLI-82-31, dated October 14, 1982, the Commission dealt with two matters which were addressed in the Cheating PID, one of which was the Licensing Board's recommendation that the NRC conduct an investigation into a possible material false statement by Licensee, related to this incident in 1979. The Commission directed that the Appeal Board not consider "these matters in its review." Licensee understands the Commission Order to be directed at the recommendation of an investigation of a material false

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each of TMIA's arguments seriatim.

TMIA argues that Licensee's removing Mr. VV from his position as Supervisor of Operations and placing him in non-supervisory positions -- first temporarily as a member of an ad hoc team assessing the TMI-2 accident and later as as a technical liaison with outside groups involved in technical support of post-accident activities at TMI-2 -- was not disciplinary action because the move was not a demotion. TMIA Brief, at 47-49. Their argument eludes reality.

At the time of the incident, Mr. VV was Supervisor of Operations at TMI-2. Miller, ff. Tr. 24,358, at 6. His position was analogous to that of Mr. Ross now at Unit 1, characterized by the Licensing Board as possibly the single most important position in plant management. Tr. 23,723 (Arnold); Management PID at ¶ 155; Cheating PID at ¶ 2192. Following the incident in 1979, Licensee management removed him from this position and placed him in successive positions having no supervisory role, but where his acknowledged technical expertise could be utilized. Miller, ff. Tr. 24,358, at 6; Tr. 23,773-74 (Arnold). That this

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statement. Thus, Licensee in this brief does not address the Board's recommendation. Further, as Licensee has already noted in its Comments on Immediate Effectiveness filed with the Commission on August 20, 1982, pending completion of these investigations, Licensee withholds comment on the Licensing Board's conclusion that Mr. Miller, with Mr. Herbein's knowledge and assent, falsely certified information to the NRC in connection with the certification of VV. See Cheating PID at ¶ 2306.

move was in fact a demotion and an impediment to advancement in Licensee's organization is borne out by comparing the effect it has had on Mr. VV's subsequent pay raises with those of his courterpart in Unit 1 and of the individual who assumed his supervisory position in Unit 2. See Cheating PID at ¶ 2282. These comparisons show that both Mr. VV's counterpart in Unit 1 and his replacement at Unit 2 have had salary increases since the July, 1979 incident twice that of Mr. VV, and whereas Mr. VV's salary in July, 1979, was the highest of the three, his now is the lowest. See Lic. Exs. 81a and 81b.

TMIA claims that Licensee missed the mark by not publicizing its views of the inappropriateness of Mr. VV's actions and by not making them known to Mr. VV. TMIA Brief at 47-49. Licensee's position was articulated both by Mr. Arnold and by Mr. Miller. Mr. Arnold explained that while disciplinary actions generally have the dual purpose of instructing both the individual involved and other employees as well, Licensee does not make it a practice to discuss individual employee personnel matters. Tr. 23,620-21, 23,734, 23,738, 23,896 (Arnold). Further, although Mr. Arnold testified he did not know that Licensee's other employees understood the VV incident, he was sure the fact that the incident had occurred was common knowledge by the plant staff, and in his view management's disapproval of it was clearly signalled by Mr. VV's removal as Supervisor of Operations. Tr. 23,738, 23,772, 23,895-96 (Arnold). As Mr. Arnold observed, it would be exceedingly naive on management's part not to both

understand and presume that the organization understands why and for what reasons this type of action was taken. Tr. 73,738 (Arnold).

Mr. Arnold was also examined on whether he had made his views known to Mr. VV so that he understood the severity of the Licensee's actions. Mr. Arnold testified that he had never directly discussed the incident with Mr. VV. Tr. 23,732 (Arnold). TMIA takes Mr. Arnold's later response that he was not aware that anyone specifically told VV of Arnold's view that VV should never return to his position of supervisor of operations (Tr. 23,775-76) and translates it into the far broader statement that Mr. VV was never told he was being reassigned for disciplinary reasons. TMIA Brief at 48. They ignore their own exhibit which reports Mr. Miller's discussions with Mr. VV and ignore as well Mr. Miller's testimony that he told Mr. VV that he (Mr. VV) had not shown respect for the training program and had not acted in a professional manner. See TMIA Ex. 71; Tr. 24,408 (Miller). With this bald admonishment from his supervisor and never being returned to a line organization supervisory position, but rather being reassigned to a non-supervisory position, it is difficult to conceive that Mr. VV did not know he was being disciplined as a direct result of management's views of his actions on the training exam.121/

121/ Nor does Mr. VV's testimony that, in his view it was a lateral move rather than a demotion, settle the question of whether he knew he was disciplined. See Tr. 26,642 (Mr. VV). See Cheating PID at ¶ 2284.

In Mr. Arnold's and Mr. Miller's views, the action of removing Mr. VV from an important supervisory position was an action more severe than a one- or two-week suspension. Miller, ff. Tr. 24,358, at 6; Tr. 23,737-38 (Arnold). There is no evidence to the contrary. This more severe action was nevertheless taken even though there were important reasons why disciplining Mr. VV at the time was a particularly sensitive matter.122/ The Licensing Board's judgment that VV's reassignment was an adequate remedy should be affirmed. See Cheating PID at ¶ 2286.

TMIA's position is that the Licensing Board erred in not concluding that Mr. Arnold rendered untruthful testimony, and (apparently therefore) in not finding Mr. Arnold incompetent to manage TMI-1.123/ TMIA finds incredible his testimony (1) regarding his view of the awareness of company personnel of the VV incident and of Licensee's resultant actions; and (2) that he never reviewed Mr. VV's files; and (3) that he was not involved in nor, in fact, aware of VV's certification to the NRC in 1979, and cites him for "covering up the incident until the [certification] letter was produced along with accompanying relevant

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122/ Mr. Arnold described in some detail this sensitivity, in responding to questions concerning whether firing Mr. VV was considered. See Tr. 23,733-34.

123/ Mr. Arnold's impressive credentials were provided in detail to the Licensing Board; the record is uncontroverted in this regard. See Arnold, ff. Tr. 11,434, at 1; Tr. 11,962 (Crocker); Lee, ff. Tr. 13,251, at 4, 12; Tr. 13,303 (Wegner). See also Management PID at ¶¶ 132-33.

evidence during the discovery phase of these hearings." TMIA's accusations are factually incorrect; they are based on the pure speculation unsupported by evidence.

We have addressed above Mr. Arnold's testimony on other Licensee personnel awareness of the VV incident. See pp. 146-147, supra. While he testified he did not know, he presumed others learned of the incident and understood Licensee's actions with respect to Mr. VV. See Tr. 23,737-38, 23,741, 23,772, 23,895-96 (Arnold). He testified he never spoke himself with Mr. VV. Tr. 23,732 (Arnold). At most, his opinion about others' awareness of the incident could be wrong -- which is not clear. In no event was it untruthful.

TMIA finds incredible Arnold's testimony that he did not review VV's files. TMIA Brief at 49. The entire testimony on this subject consists of Mr. Arnold's response that he personally did not review the files on VV. See Tr. 23,707, 23,708 (Arnold). There is no evidence, express or implied, that he did. When one considers all that was going on at TMI at the time for which Mr. Arnold was responsible, see, e.g., Tr. 23,733, 23,762-63 (Arnold); Tr. 24,421-23 (Miller); Tr. 25,096-97 (Crocker), it is hardly illogical that he relied on reports from others in his organization for the background on Mr. VV, rather than himself pouring through personnel records of an individual manager several layers down in the organization. TMIA's speculation to the contrary is just that -- speculation.

Similarly, Mr. Arnold's testimony that he was not aware of VV's certification at the time is uncontroverted. See Tr. 23,707-08 (Arnold). Nevertheless, TMIA asserts "Arnold's implication is inferred from clear evidence on the record." TMIA Brief at 56. As support for this statement, TMIA provides the following citation: "See earlier discussion regarding VV, ¶ III,C." But review of the cited section in TMIA's brief yields only one statement regarding Arnold's involvement in the VV certification. Again, it is merely TMIA's own bald assertion that Arnold was not being truthful when he testified to his ignorance of the facts surrounding the 1979 incident. TMIA Brief at 49. This time, there is no citation at all. In short, there is no evidence that Arnold was involved in or even aware of VV's certification in 1979, TMIA's accusations notwithstanding, and the Licensing Board's determinations, contrary to TMIA's unsupported position, are correct. See Cheating PID at ¶ 2320.

Finally, TMIA faults Mr. Arnold as "ultimately responsible for covering-up the incident until the [certification] letter itself was produced along with accompanying relevant evidence during the discovery phase of these hearings." TMIA's position is absurd. Above, we point out that Mr. Arnold did not even know of the certification letter in 1979. Moreover, although documents related to this event were produced during discovery, the incident had come to light in the context of this proceeding because Mr. Arnold himself had recalled it when the investigations of the O and W cheating were initiated by NRC at TMI, and

Arnold himself had called it to the investigators' attention. See Cheating PID at ¶ 2320. Months later, the incident became a subject of discovery. The Board properly characterized Mr. Arnold's prompt disclosure of the O-VV incident as a positive indicator, contrary to TMIA's assertion in this regard. See id.

TMIA's accusation that Mr. Miller's testimony was untruthful has no direct cites to the evidentiary record, but relies on a portion of the Cheating PID and the Special Master's report. TMIA Brief at 50. Their cite to the Licensing Board PID is to that Board's discussion of whether the certification of Mr. VV included a material false statement; nowhere in the Licensing Board's discussion does it characterize Miller's testimony as untruthful. See Management PID at ¶¶ 2303-07. Their reference to the Special Master's Report is to a paragraph in which, indeed, the Special Master speculates that Mr. Miller really determined that Mr. O knew he was providing answers for Mr. VV's exam,124/ but was reluctant to discipline O for following the

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124/ Mr. Miller denies this. Miller, ff. Tr. 24,358, at 4. Mr. O also denies that he knew he was assisting Mr. VV on VV's exam. Id. at 3; Tr. 26,190-91 (Mr. O). TMIA maintains that Mr. O did know what, in fact, he was doing. As evidence of his knowledge, TMIA cites the Special Master's remark during the hearing that handwriting on an exam cover sheet (which Mr. O said he had not seen) appeared similar to that of Mr. O. TMIA Brief at 64. TMIA argues that the handwriting question was not adequately pursued in investigations and in this proceeding. Id. at 64-65. That the handwriting question was not further pursued by TMIA is not anyone's fault but TMIA's; it is not Licensee's (as TMIA would have it, TMIA Brief at 64) or the Licensing Board's (as TMIA would alternatively have it, TMIA Brief at 65). TMIA was present when the Special Master made his observation and could have pursued the question; it chose not to. To lay blame on others now is wrong. In any event, although TMIA provides no citations at

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orders of a superior. SMR at ¶ 227. This theory on the Special Master's part is not the position of any witness who appeared and was never annunciated until his decision. Mr. Miller was never questioned on this theory.125/ The Licensing Board properly rejected the Special Master's speculation. See Cheating PID at ¶¶ 2275-76. These references by TMIA provide scant or no support for TMIA's serious charge that Mr. Miller's testimony was untruthful and their accusations should be rejected.

TMIA complains that the Licensing Board in judging management in light of the 1979 incident did not appropriately factor in integrity. Thus, TMIA argues that the Licensing Board put competence ahead of integrity, TMIA Brief at 52-53, inappropriately diminished the significance of the 1979 incident involving Mr. VV and Mr. O because it is not directly relevant to TMI-1, TMIA Brief at 57, and failed to "recommend severe sanctions against Miller, Herbein, Arnold and the company for its involvement in [the 1979 VV-O] incident."126/ TMIA Brief at 57.

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all to the record concerning the handwriting question, the record reflects that immediately following the Special Master's observation, Mr. VV, who was the witness at thetime, was shown the handwriting and testified it was his. Tr. 26,658-59 (Mr. VV).

125/ Licensee notes that in comments on the Special Master's Report, Mr. Miller has devoted ten pages to a renouncement of the Special Master's theory. See Gary P. Miller's Comments on the Special Master's Report, dated May 19, 1982.

126/ TMIA would have the Licensing Board sanction Mr. Miller and Mr. Herbein as well "for their involvement in stifling information flow during the accident." TMIA Brief at 52-53. The Licensing Board did not find that they "stifled" information

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We discuss above the attacks by TMIA on the credibility of Messrs. Miller and Arnold. We believe TMIA's attacks and accusations are unjustified. See pp. 148-152, supra. As to competence, the Licensing Board had no reason to question their abilities; there was no evidence other than favorable views. With respect to Mr. Herbein, TMIA states that he is clearly implicated in the decision to send the certification letter on VV to NRC in 1979, TMIA Brief at 56, and that removing him from a nuclear-related position does not absolve him "from guilt". TMIA Brief at 57. The evidence on Mr. Herbein's involvement in the certification letter is limited; as the Licensing Board recognized, Cheating PID at ¶ 2316, Mr. Herbein never appeared to testify on this subject. That he was involved in some measure in the certification of Mr. VV is apparent from the record, see, e.g., Tr. 24,440 (Miller), but the degree of involvement is not clear. The Commission has ordered an investigation of the incident and Mr. Herbein's role presumably will be a subject of inquiry in that investigation. See CLI-82-31, slip op., at 4-6. It is premature to judge Mr. Herbein's integrity based on this

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flow. In fact, the Board decided not to conduct its own investigation into this matter, devoting some twenty pages of its decision to an extensive discussion of its reasoning. See Management PID at ¶¶ 469-503; see also pp. 53-58, supra. Neither Mr. Miller nor Mr. Herbein was ever questioned on the subject in this proceeding. For TMIA now to fault the Licensing Board for not sanctioning or recommending sanctions of these two individuals on the record in this proceeding is totally unjustified.

1979 incident when his role is not clear. What is clear is that Mr. Herbein will not be involved in the restart and operation of TMI-1. See Licensee counsel's letter to Appeal Board of March 11, 1982. What is also clear is that his competence was unchallenged by evidence of record; TMIA cites no contrary evidence.

Under these circumstances, it is difficult to understand TMIA's argument that the Licensing Board improperly put competence ahead of integrity in the cases of Messrs. Arnold, Herbein and Miller. It appears that the Licensing Board could have, because none of them had their competence challenged--but it did not. Mr. Arnold's integrity is impugned only by TMIA's accusations -- not by the record. There was no need for a balancing. Mr. Herbein was no longer involved in TMI-1's operation as the Licensing Board observed, Cheating PID at ¶ 2316, and thus the Licensing Board did not reach the judgment of whether his involvement in TMI is appropriate. The Licensing Board characterized Mr. Miller's position as being in more of a support role (at the time of its decision)127/ than a role involving direct decision-making of line operating authority over the operations of TMI-1. Management PID at ¶ 479, as modified by the Licensing Board on September 2, 1981; Cheating PID at ¶ 2317. Nevertheless, in view totally of the integrity question, the Board required that his role in the startup testing and operation of

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127/ Mr. Miller has since been removed from even a supporting role at TMI and is no longer involved in nuclear matters for Licensee. See pp. 55-56, supra.

TMI-1 "must be under the direct supervision of an appropriately qualified Licensee official." Cheating PID at ¶ 2319; ¶ 2421 (Condition (5)). In sum, the Licensing Board's decision does not, in fact, inappropriately put competence ahead of integrity in judging members of Licensee management.

TMIA faults the Licensing Board for diminishing "the significance of the 1979 O-VV incident because, it claims, it is not directly relevant to TMI-1." TMIA Brief at 57. TMIA provides no cite for this claim. There is none. A review of the Licensing Board's decision reveals only one statement to which TMIA can be referring, and their characterization of the Licensing Board's position is at odds with that statement. See Cheating PID at ¶ 2272. Moreover, their claim is totally at odds with any reading of the decision as a whole. Id. ¶¶ 2048-50, 2272-2320, 2419. Far from diminished importance, the Licensing Board was dogged in its review of the evidence related to this incident and emphatic in its determinations on the matter.128/ TMIA is wide of the mark in criticizing the Licensing Board for playing down the 1979 incident.

An additional criticism by TMIA levelled at the Licensing Board was the Board's failure, in TMIA's view, to sanction Mr. Arnold, Mr. Herbein and Mr. Miller for their roles in the 1979 incident. We repeat our view above that no sanction is

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128/ We reiterate that Licensee takes no position on the question of whether a material false statement was made in Mr. VV's certification, pending the outcome of the investigation.

appropriate for Mr. Arnold. He was not aware of the certification in 1979, and he was the individual who raised with NRC at the outset of their investigation into the O-W cheating in 1981, the possible connection of the incident in 1979 which also involved O. See pp. 150-151, supra. Mr. Herbein is no longer involved in nuclear matters for Licensee; TMIA's position that he be sanctioned (in some undefined way) appears unwarranted. He is, in any event, a subject of an ongoing investigation of his role in the 1979 incident (an investigation prompted by the Board) and any actions against Mr. Herbein personally should properly await the outcome of that investigation. Mr. Miller, too, is subject to the same investigation and any sanction for his role should similarly await the investigation results.129/ In this regard, Licensee notes the precipitousness with which TMIA urges sanctions against individuals. Whereas, in another context, TMIA alludes to "the Board's responsibility to insure that procedural due process required by law was accorded all parties", TMIA Brief at 3, it proposes -- indeed, urges in the strongest terms -- sanctions on individuals who had no opportunity to respond, such as Mr. Herbein. We doubt that TMIA's position is that due process applies to "parties" to which they refer, but not to individuals as well. But we can see no other

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129/ To repeat, neither Mr. Herbein nor Mr. Miller is any longer involved in TMI or other nuclear matters for Licensee. As the Licensing Board pointed out, jurisdiction to sanction them individually is questionable. See Cheating PID at ¶¶ 2310-11.

explanation for their calls for individual sanctions based on this proceeding.

H. Commonwealth concern with Licensing Board conditions

In its Cheating PID, the Licensing Board set down four training-related conditions on the restart of TMI-1. Cheating PID at ¶ 2421. These conditions are to be satisfied within the first two years after any restart authorization. Id. at ¶ 2347. The Commonwealth argues that one of those conditions should be expanded and required to be fulfilled prior to restart.130/

130/ The Commonwealth in its exceptions filed with the Appeal Board on August 20, 1982, and in its contemporaneous comments on immediate effectiveness filed with the Commission, noted its disagreement with Condition (2) set down by the Licensing Boad. There was, of course, no attendant discussion of the exception. In its immediate effectiveness comments of the same date, however, the Commonwealth did discuss its problem with the Licensing Board's Condition (2). It there stated:

> The Commonwealth does not comprehend, however, why the second condition should not be required prior to restart . . . .

Id. at 7 (emphasis in original).

Licensee in its immediate effectiveness reply comments ten days later sought to meet the Commonwealth's concern. Thus, Licensee committed "to complete and provide to NRR for its pre-restart approval, specific qualification criteria for licensed operator training instructors." Lic. Reply Comments on Imm. Eff.-Cheating at 43.

In its brief on exceptions, the Commonwealth continues its difference with the Licensing Board's condition and, as well, faults Licensee for not being responsive to the Commonwealth's concern. Now, it argues:

> The Commonwealth does not comprehend, however, why the second condition should not be expanded and required to be fulfilled prior to restart . . . .

Commonwealth Brief at 34-35 (first emphasis added; second

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Commonwealth Brief at 34-35. The condition at issue is Condition (2) which reads:

> Licensee shall establish criteria for qualifications of training instructors to ensure a high level of competence in instruction, including knowledge of subject taught, skill in presentation of knowledge, and preparation, administration, and evaluation of examinations.

Licensee has not opposed and intends to comply with Licensing Board Condition (2) for all Licensee's training instructors at TMI-1. Additionally, Licensee intends to meet the Commonwealth's concern as articulated in its brief to the Appeal Board. Thus, Licensee herein commits (1) to complete and provide to NRR for its pre-restart approval, detailed, specific criteria for licensed operator training and retraining instructors, and (2) to provide to NRR prior to restart an evaluation of these instructors against the approved criteria.131/

(Continued)

emphasis in original); compare id. with Commonwealth Comments on Immediate Effectiveness at 1, 7 (cited above). Its argument is not only that Condition (2) should be satisfied prior to restart, as it maintained in its arguments to the Commission on August 20, but now as well it argues that it would require a determination prior to restart of whether Licensee's instructors are qualified according to appropriate standards, i.e., the criteria described in Licensing Board Condition (2). Commonwealth Brief at 36.

131/ Our commitment to complete the criteria and evaluate the TMI-1 instructors against the criteria prior to restart is limited to licensed operator training and retraining instructors, which we understand to be the Commonwealth's concern. See Commonwealth Brief at 35-36 (referring to "Licensee's operators," "qualified operators," "quality of instruction received by operators," and "Licensee's operator training program").

I. Impact on Design Findings

UCS argues that the Licensing Board erred in not reconsidering its PID of December 14, 1981, in light of the reopened hearing, and erred as well in failing to withdraw restart authorization in light of the relationship between the reopened hearing and the design and operational safety issues in the December, 1981 PID. UCS Brief at 23-29. UCS's position, not raised by other parties, is that the Licensing Board's December, 1981 PID132/ on plant design and procedures depends in part upon proper training, that the subsequent reopened hearing establishes that training is not proper at TMI-1, and thus, that the Licensing Board's decision on plant design and procedures is inadequate to support restart.133/

As we demonstrate below, in constructing its argument UCS has mischaracterized the Licensing Board's decision, and the case advanced by UCS, on plant design and procedures issues.

It is instructive to correct, at the outset, the UCS description of its interest in the subjects of operator training and procedures during the plant design and procedures phase of

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132/ LBP-81-59, 14 N.R.C. 1211 (1981); hereinafter cited as "Design PID at ¶ _____."

133/ UCS's challenges on training per se are encompassed by the arguments of other parties and thus discussed above. That is not surprising since, as UCS admits (UCS Brief, at 1,9-10), it never participated in one of the eighteen days of reopened hearing and (as it does not admit) did not participate in even one of the more than five days of hearing time devoted to training in the main hearing. In short, UCS was a non-participant in the training phases of this case.

the proceeding. UCS now speaks of design and "operational safety" issues it actively pursued in earlier stages of the proceeding, and states that "UCS has urged the adoption of changes to the design of TMI-1, in addition to new training and procedures." UCS Brief at 1, 2. In fact, a keen UCS interest in the "operational" facets of the case did not manifest itself until long after the evidentiary record on plant design and procedures issues was closed.134/ Further, Licensee is not aware of any UCS proposal, and none is cited in the UCS Brief, for new training and procedures at TMI-1.

In stark contrast to the impression UCS now seeks to convey, its case before the Licensing Board focused uniquely upon proposed changes to the design of hardware -- plant structures, systems, and components -- and not upon plant operating procedures and operator training.135/

134/ See UCS ". . . Motion to Reopen the Record, to Permit the Taking of Depositions, and for Costs Against the Staff," September 10, 1981, based upon a document entitled "Recommendations of TMI-2 IE Investigation Team (Operational Aspects)," dated September, 1979. The motion was denied in Memorandum and Order Denying Motions to Reopen Record, LBP-82-34A, 15 N.R.C. 914 (1982).

135/ UCS Contentions 1 and 2 propose the addition of a safety-grade system to provide forced cooling of the reactor. UCS Contention 3 suggests the modification of the pressurizer heaters and associated controls to safety-grade status. UCS Contention 4 opposes the connection of the pressurizer heaters to the on-site emergency power supplies. Contention 5 asserts that the PORV, its block valve and associated instrumentation and controls should be modified to become safety-grade. UCS Contention 10 proposes the modification of safety system designs to prevent operator intervention. UCS Contention 14 suggests a wholesale modification of plant systems and components to safety-grade status. The consistent answer UCS advanced to the Licensing

(Continued Next Page)

When UCS had the opportunity, in the plant design and procedures phase of the proceeding, to question the adequacy of operator training and procedures which Licensee advanced as relevant to the safety concerns raised, UCS largely ignored this element of Licensee's case. Michael J. Ross, TMI-1 Supervisor of Operations, testified on the plant procedures and training aimed at assuring that operators do not intervene improperly in safety system operation. Clark, et al., ff. Tr. 6225, at 7-11. In its cross-examination, UCS asked few questions on that testimony. See Tr. 6241-6351. Mr. Ross testified on the training provided to operators on the recognition and response to inadequate core cooling conditions and the approach to such conditions. Keaten, et al., ff. Tr. 10,619, at 14-19. UCS did not attend the hearing session at which this testimony was presented.

Licensee does not suggest that the UCS switch in emphasis following the plant design phase of the hearing is dispositive of the UCS exceptions to the Licensing Board's decision in the reopened proceeding. We do believe, however, that it seriously undermines the credibility of the UCS appeal here when UCS complains that the Licensing Board did not reconsider its plant design decision to evaluate anew the influence of operator

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(Continued)

Board for every potential safety concern was to modify the design of plant systems and components to meet the UCS view of applicable regulatory criteria and standards.

training, even though UCS virtually ignored that subject throughout the initial litigation of its contentions.136/

More critical to this aspect of the UCS appeal, however, is the fundamental mischaracterization of the Licensing Board's Partial Initial Decision on plant design and procedures issues represented by the following UCS statement:

> A common thread ran throughout much of the ASLB's decision: design changes are unnecessary because post-accident improved training and procedures can be relied upon to ensure that operators properly diagnose and mitigate accidents even in the absence of highly reliable instrumentation and equipment.

UCS Brief at 2. In fact, UCS attempted to support its contentions proposing hardware modifications almost exclusively by application of its view of regulatory criteria and standards, and its contentions were rejected on that basis, among others.

UCS Contention 1 was rejected because the Licensing Board found that forced cooling of the reactor with reactor coolant pumps is not a required safety function. See Design PID at ¶ 626. Contention 2 was rejected on similar grounds, and because the design of the residual heat removal system was found to be adequate, and because there was found to be adequate capacity and

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136/ Motions to reconsider should be associated with requests for re-evaluation of an order in light of an elaboration upon, or refinement of, arguments previously advanced. They are not the occasion for an entirely new thesis. Central Electric Power Cooperative, Inc. (Virgil C. Summer Nuclear Station, Unit No. 1), CLI-81-26, 14 N.R.C. 787, 790 (1981); Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-418, 6 N.R.C. 1, 2 (1977).

shielding for storage of radioactive water "bled" from the primary system. Id. at ¶¶ 626-629. Contention 3 failed because the Board found UCS's arguments regarding safety-grade requirements for pressurizer heaters and their controls to be unpersuasive. Id. at ¶ 756. UCS Contention 4 was rejected because the Licensing Board found that "Licensee had shown that the desired pressurizer heater loads can be connected to the on-site emergency power supplies without degrading the capacity, capability, and reliability of these power supplies." Id. at ¶ 770. On UCS Contention 5, the Licensing Board found that

> . . . [C]ontrary to UCS' contention, proper operation of the PORV and associated block valve, and the instruments and controls for these valves is not required to mitigate the consequences of design basis LOCAs and, although the failure of the PORV can create or aggravate a LOCA, the consequences of such an accident can be safely mitigated by safety-grade equipment.

Id. at ¶ 792. UCS lost on its Contention 10 in large part because the Licensing Board found that UCS misread and misapplied the NRC regulation and IEEE standards advanced as support for the suggested design changes. See id. at ¶¶ 726, 730 and 739. In its decision on UCS Contention 14, the Licensing Board found that UCS was wrong on the NRC classification system used in the past for application of design criteria to systems and components, and short-sighted on the policy UCS would apply for a change to that classification scheme. See id. at ¶¶ 974-988.

In short, the Licensing Board did not find, as UCS suggests, that the TMI-1 design suffers from the absence of highly reliable

instrumentation and equipment. Consequently, that Board did not reject the UCS proposed hardware changes simply because reliance may be placed on improved training and procedures.

In its brief, UCS trumpets and repeats (UCS Brief at 3 and 24), as the single illustration of its point,137/ an observation by the Licensing Board that

> We do not disagree with the UCS claim (proposed finding ¶ 35) that extensive training and well-conceived procedures are required when the feed-and-bleed cooling mode is relied upon to dissipate the heat from the core, but the complete record as it stands today supports the conclusion that these procedures and training can be provided. However, we have reopened the record in this proceeding to inquire into the significance of the test cheating disclosures on the effectiveness of operator training.

Design PID at ¶ 625. Several points are significant to an assessment of this statement.

First, the record does not support the Licensing Board's conclusion elsewhere that feed-and-bleed cooling need be relied upon at TMI-1 for any design basis event, and Licensee has requested Appeal Board modification of the Licensing Board's conclusion to the contrary.138/ Second, there is a substantial

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137/ UCS inappropriately attempts to incorporate by reference its comments to the Licensing Board on the Report of the Special Master. See UCS Brief at 1, 24. Those comments, however, merely reminded the Licensing Board of occasions when evidence was presented by Licensee on the role of the plant operator. As we discuss below, Licensee does not question the obvious relationship between the plant and its operators. The question here, however, is whether the Licensing Board acquiesced in the operation of TMI-1 with a deficient plant design, to be compensated for with operator training. The Partial Initial Decision of December 14, 1981 clearly establishes that the issues were not resolved on that basis.

138/ See Licensee's Brief in Opposition to the Exceptions of Other Parties to the Atomic Safety and Licensing Board's Partial

(Continued Next Page)

record, ignored by UCS, which demonstrates the capability of the operators to perform successfully the few necessary actions for feed-and-bleed cooling. See Keaten, et al., ff. Tr. 16,552, at 10-11. Finally, contrary to the implications of the UCS argument, the Licensing Board had evidence before it to support the finding that the operators can receive guidance and training on these actions. See, e.g., Keaten, et al., ff. Tr. 10,619, at 7-19 (procedures and training on inadequate core cooling).

While Licensee has taken issue above with UCS's gross exaggeration of the role operator training played in the Licensing Board's decision on the UCS plant design contentions, at the same time Licensee recognizes and has recognized, as reflected in its testimony, the interplay in some cases between proper operator action (and therefore adequate operator training and procedures) and the Licensing Board's resolution of the contested plant design and procedures issues. In the final analysis, however, there is no effective compensation in the plant design which could be undertaken to overcome deficient operator training. The Appeal Board should reject the implicit UCS argument to the contrary. The Licensing Board did not condition its decision on plant design and procedures issues on the outcome of the reopened proceeding and, with the entire record before it, properly chose not to reconsider that decision.

(Continued)

Initial Decision on Plant Design and Procedures, Separation, and Emergency Planning Issues, May 10, 1982, at 68-84.

APPENDIX I

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34	¶ 16
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41	¶ 14
45	¶ 14
47	¶ 14
48	¶ 14
52	¶ 14
53	¶ 14
55	¶ 14
56	¶ 14
84 (sic--83)	¶ 13

139/ Of the 225 exceptions filed by the Aamodts, only 16 were explicitly referred to in the "Aamodt Brief of Exceptions." Similarly, TMIA failed to explicitly brief 68 of its 224 exceptions. See n. 2 to Introduction, supra. Licensee here does not attempt to identify those exceptions which are not identified in the brief.

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APPENDIX II

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November 15, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289 SP
	)	(Restart)
(Three Mile Island Nuclear Station, Unit No. 1)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing LICENSEE'S BRIEF IN OPPOSITION TO APPELLANTS' BRIEFS ON EXCEPTIONS RELATED TO MANAGEMENT CAPABILITY was served this 15th day of November, 1982, by deposit in the United States mail, postage prepaid, addressed to each person on the attached Service List.

Ernest L. Blake, Jr.

Ernest L. Blake, Jr.

Dated: November 15, 1982.

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Appeal Board

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	)	(Restart)
(Three Mile Island Nuclear Station, Unit No. 1)	)	

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